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Lectures on Practical Mining in Germany.

CLAUSTHAL MINING SCHOOL NOTES—No. XLVII.*

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SECTION III.

TAMPING.—After the charge has been placed at the bottom of the hole the needle is introduced, the point of which is let well into the charge of powder, and the hole is then filled with tamping. As powder can be ignited by compression, care must be taken at the commencement of tamping; a little wadding of either hay, straw, turf, or even a small stopper of soft wood is, therefore, placed immediately over the powder. The tamping itself usually consists of the dust and broken pieces of the rock itself, provided it is a rock which will not strike fire—marls, loam, clay, which are free from grains of quartz, broken brick, or sand. The object of tamping is to obtain as great a resistance over the powder as possible, or rather a resistance greater than that which the rock offers to being loosened. At Clausthal, in the Hartz, the clayslate of the district is used as a good material for filling up the bore holes. It is first pounded to a fine powder under a pair of stamps, and after being passed through a fine sieve is moistened with water, and made into oblong slabs, which are left in the air to dry. When the miner requires a piece for tamping he breaks a portion off from the larger slabs, and drives it into the hole. The oldest method of tamping was by means of a wooden plug driven into the hole, the plug containing a small hole for the train of powder. Sir J. Burgoyne, who has tried conical shaped plugs placed immediately above the charge, the rest of the hole being filled with moderate sized pieces of rock, and barrel-shaped plugs driven in above a loose sand tamping, finds that in every case they offer much less resistance to a sudden explosive force than to one gradually applied. The old method had the drawback that the powder might be ignited during the process of tamping, and these newer proposals, besides not offering the same amount of resistance as a solid clay tamping, are open to the objections of loss, difficulty in removing them when a shot failed, and the workmen might readily employ plugs which are not of the exact size, besides the diminishing the simplicity of the blasting operations.

Tamping with sand was introduced by M. Baduel during the construction of the Simplon Pass, in 1805, and later by M. de Candolle at Mont Cenis; but in both cases, although some good results were obtained in blasting loose masses of rock, or rock where at least two sides were exploded, in the solid rock the sand was blown out without splinting the rock. It was expected that the sand being in a loose condition the shock of the explosion would not be transmitted to the outer portion of the sand tamping before the decomposition of the powder was complete, and consequently before the whole force of the explosion was developed, in which case it was expected that the rock would be at once shattered. Trials at the Hartz, Saxony, and Pesay have confirmed the above results, so that, notwithstanding the advantage of first less cost, simplicity, and absence of danger, its use has been abandoned.

It is well known that all the powder is not decomposed, but that sometimes it is blown out by the explosion before complete decomposition has taken place. In order to obviate this, and to obtain the advantage of the whole expansive force of the powder, M. Hausmann introduced at the copper mines of Roeras, in Norway, and afterwards into the Hartz, the so called "hollow tamping"—that is to leave a small empty space immediately above or below the powder. This object was attained by placing a small conical or double T-shaped air stopper immediately above the charge. It was said that by this method a saving of 25 per cent. in powder was obtained.

FIRING.—The needle having been withdrawn leaves a small circular channel, destined to transmit the ignition from the mouth of the orifice to the bottom of the charged hole. In this channel fine-grained hunting powder is poured, often loose, but more generally first into some kind of small tube, which latter is then inserted in the orifice. These tubes are made of reed, elder, hazel, but most usually straw. The miner chooses a long stalk, and cuts it below two consecutive knots, so that the one end is open and the other end closed by the knot. This latter end he scrapes or pares pretty thin, so as to allow of the ignition being quickly communicated to the powder in the hole. The straw is now suspended in the orifice by means of a small lump of soft clay, the knotted end being directed downwards; a sulphur match, made of a short piece of hempen string dipped in sulphur, is attached to the open end of the straw, and communicates the ignition to the powder, and the reaction of the gases developed against the air forces the straw and powder to the bottom of the orifice igniting the charge. If the hole is deep a series of these straws are inserted at the ends into each other, and introduced into the opening. Small rockets have also been manufactured for the same purpose: they are made of paper or reed tubes, which are first split open, and then covered inside with a powder paste.

In firing under water it is necessary to modify the arrangement of the charge and the fuse. The tubes for the fuse are them made of wood, linen cloth, or pasteboard tarred over, and are inserted in a cartridge, likewise made watertight.

In 1831 a patent was granted to W. Bickford, of Tucking Mill, Redruth, Cornwall, for an instrument for igniting gunpowder when used for blasting rocks, which he denominates the "Miners' Safety-Fuse." This fuse is described as a cylinder of gunpowder or other explosive compound, inclosed within a hempen cord, which is first twisted, and afterwards overlaid with another cord to strengthen the casing thus formed, then varnished, to preserve the contents from injury by moisture, and finally covered by whiting or other suitable matter to prevent the varnish from adhering. In order to make use of the safety-fuse the miner unravels part of one end, and inserts this end into the cartridge containing the charge. He then squeezes the cover of the cartridge close against the fuse, and ties it tight with the unravelled strands. The proper length of fuse is cut off before placing the charge in the hole. Originally two sorts were manufactured, now there are three, for dry holes, damp holes, and for blasting under water. The great advantages of the safety fuse are that it can be used in damp holes, and the use of the needle is avoided; but they possess the disadvantage of increasing the cost, rendering the air bad, the covering smoulders or glows after the explosion, which in fiery mines would be a continual source of danger, though in such a case the use of powder itself forms the greater danger of the two.

A new safety-fuse, manufactured by William Mills and Co., consists of narrow strips of paper saturated in a solution of equal parts of potassic-chlorate, a ferro-cyanide of lead in alcohol, and surrounded by hemp, or the like, which has been dipped in tar. The ignition is transmitted with such rapidity that the cover is not ignited. Rjiha, of Vienna, has invented a safety-fuse which is said to possess the advantage over Bickford's fuse that it leaves no oppressive smell behind, and that whilst it possesses sufficient stiffness for insertion in the bore hole it is flexible enough to be coiled up and carried in the pocket, and the covering is not also ignited. The fuse burns at the rate of about 3 ft. per minute, and stands the damp and wet of a mine very well, although when used for blasting under water it is usual and necessary to smear it over with india-rubber dissolved in sulphur. It is, however, 50 per cent. dearer than Bickford's, and as it burns without light or smell the miners cannot follow the point where it burns, which in case of supposed misfire, &c., must be considered as a disadvantage.

Whitehorne's Britannia safety-fuse consists of a core made up of a number of yarn threads dipped in a solution of saltpetre, which are twisted round a core of powder: the surface of the core is covered over with tar or pitch, and then with two long strips of paper or felt. These two strips are cut so broad that they cover exactly one-half the circumference, and are pasted over. The core and covering are lastly surrounded by a covering of cotton, and the whole is then drawn through a bath of pitch or tar, to render it water-tight, which after being rubbed over with whitening or with gypsum is ready for sale. The advantages appear to lie in the protecting nature of the covering against damp, &c., and in the cheapness of the manufacture, but the disadvantage of the molesting nature of the products of combustion has hitherto prevented its extensive use in mines.

The chief advantages in the use of safety-fuses over the ordinary method are—the danger which always attends the use of the needle is avoided—in firing the comparatively small charges which are made use of in a mine the opening made by the needle, or the fuse hole, tends very much to reduce the effect, for after the burning of the powder in the usual manner in the straws the hole is open to a considerable extent, and the gases first developed can partly escape through this orifice, and besides the powder is by this means ignited at one end of the charge, and the decomposition of the whole mass takes place more slowly than if ignited in the centre of the charge, as in the case where the fuse is used—the loss of time occupied by the miner in filling the straws and making a slow match is avoided. The advantages are chiefly in quarrying and in open excavations, where the holes are of great depth, and the object is to loosen a large quantity rather than a definite portion, as is the case in the levels and workings of a mine, where besides there is often only one free surface to the portion intended to be dislodged.

FIRING BY ELECTRICITY.—It has long been a favourite idea with many persons connected with mining that if the holes which are being bored at the bottom of a shaft, or at the end of a gallery, are fired simultaneously not only is the time saved which is generally lost by the cessation of boring during the firing of one hole, but that a greater effect is obtained from the powder, due to the fact that the explosions are simultaneous. It is probably due to this opinion that the use of electricity for firing off charges is becoming more common. During the sinking of the Abercarn Pit, Newport, electricity was made use of in firing the charges. Two of Grove's batteries, on account of the greater strength and convenience of this form of battery, were used for this purpose, each containing six elements of zinc and platinum; the poles were connected to two long copper wires covered with gutta-percha, which were led down the shaft. A short cylinder, about ¾ in. long, of elder, in which the two ends of the wire are inserted, is laid upon the charge. The wires are covered with gutta-percha, except at their extremities, which are united by means of a thin platinum wire. The lower part of the cylinder is filled with hunting powder, which surrounds the platinum wire. The cylinder is laid upon the powder at the bottom of the bore hole, and the wires must be sufficiently long to project out of the hole, and the tamping is placed over the charge in the usual manner. One of the wires from one of the holes is connected with that from another, so that only the two extreme bore holes have one wire each left free, and these are connected with the conducting wires laid nown the shaft. As soon as arrangements at the bottom have been completed the current is closed at the surface, and the holes are thus fired off simultaneously. The connecting wires were generally so much injured as to be of no further use, and the cost of igniting each separate charge amounted to from 2d. to 3d. by this method.

Bornhardt, of Brunswick, has constructed an electric machine specially for mining purposes. It consists of a disc of hardened caoutchouc, with a rubber of prepared felt, the whole together, with the condenser, being enclosed in a box 16 in. long by 8 in. broad, by 12 in. deep, the cover fitting air-tight. The friction disc, 9¾ in. in diameter, is fastened on an iron axis, which fits into sockets in the side of the box, so that a small handle can be fixed on to the axis from without, without the necessity of opening the box. With eight turns sparks ½ in. long are obtained, and with 25 turns sparks 1 in. long are obtained. It is not specially required to isolate the conducting copper wires; they can be laid on wet stones, and still at a distance of 300 ft. be made to ignite simultaneously several charges. The wires have even been laid in snow, and at a distance of 50 ft. Ten cartridges have been simultaneously fired.

Herr F. Abegg, of Bistritz, in Bohemia, has often made use of electric machines for mining purposes. In the machines he used the disc was made of specially prepared india-rubber, and there were eight felt rubbers. The electricity was collected in a condenser of india-rubber 12 square feet area, so that a spark of but small intensity was sufficient. The machine was enclosed in a box 9 in. long by 9 in. broad by 4 in. deep, which was made air-tight, so that the machine could not suffer from damp. The box is provided with two handles, which are connected with the machine; one of these handles which passes through an india-rubber tube into the box can be drawn out to various degrees, thus regulating the tension in the condenser according to the number of holes required to be fired in open quarry work, and the like 30 shots can be fired, and about half that number in the mine. In charging the holes the lower part is filled with a mixture of one part of unpolished blasting powder and three parts of sawdust, and above that a charge of powder (unpolished) alone. The reason why unpolished powder is used is that graphite, with which powder is usually polished, is a conductor of electricity, so that if polished powder were used the current would not be broken, and, consequently, pass through the charge without a spark. On the top of the powder the cap to which the ends of the wire are attached is placed, and the tamping which is more or less damp is rammed down; this must not be rammed in too tight, as the slight conducting power of the powder is thereby increased. With a few turns of the machine the spark should spring across the ends of the wires in the cap exploding the charge. The conductors consisted of soft iron wire 2 millimeters (1-13th in.) thick, which was carried on wooden (hard) rollers, previously soaked in oil, at distances of from 30 to 40 ft., the last few feet could rest on the ground unless it contained metalliferous ore like to carry off the current. If the machine required a great number of turns to cause the spark to spring across there was probably moisture in the box or the friction disc required renewal, which with constant daily use was required every six months. In the former case the chloride of lime placed in the box to absorp the moisture required renewal. The caps used by Abegg consist of two fine iron wires attached to a piece of pastboard 1¼ in. long by ¼ in. broad, with their ends 1 millimetre (1-26th inch) apart, the pasteboard between and under the two points is rubbed with graphite in order to facilitate the ignition, fine powder is laid on the ends, and the whole wrapped in a strip of paper which is coiled round, the outside of the cap being covered with wax. When the spark springs across it does not ignite the powder direct, being incapable of doing so, but first makes the ends of the wires red-hot, and thus ignites the powder; this is facilitated by the graphite, which burns readily when the wires become hot. Such caps are only suitable for ordinary powder charges. This method of firing shots was the subject of very extensive experiments in the coal mines in the neighbourhood of Saarbrücken, which led to its general adoption in this district. The chief difficulty which was experienced was that sometimes one or two of the shots had remained unexploded; the remedy was found in the better insulation of the wires.

The above caps were suitable only for powder; for dynamite, &c., the cap consisted of a small lead cylinder, 2½ in. long, which contained a fulminating compound; two fine wires were inserted in the cap; to the ends of these longer wires were attached, and to isolate them they were fastened in slits cut in the opposite sides of a piece of wood ¼ in. broad and 1-5th in. thick, the lead cap being attached to the end of the wood. In order to render the isolation more complete Abegg recommends the covering of the wood with a mixture of two parts of pitch and one of tallow. The stick is inserted in the hole in the same manner as an ordinary fuse. The wires from the machine are attached after the tamping, and after about fifteen turns of the machine the charges should explode. One machine should be capable of firing four shots at once. In the Westphalian mines where Abegg's method was tried the results were found not to be so favourable as at Saarbrucken; only two shots on an average could be fired at once. It is possible, however, that this may have been due, as Abegg supposes, to the incomplete isolation of the conducting wires, which would, however, make this method of firing expensive (and he, therefore, recommends the use of telegraph cable wire), and also to the presence of moisture in the machine. According to Abegg, when the caps are placed on the top of the charge of dynamite it often happens that the cap is pushed down from the wood to which the wires are attached. In order to obviate this when firing dynamite charges by electricity, Abegg places the cap at the bottom of the charge; the dynamite charges are placed over these, and covered with a clay or paper stopper, after which the hole is tamped with small pieces of brick, &c. The piece of wood to which the cap is attached passes to the bottom of the hole, and possesses sufficient elasticity to render harmless the blow during the tamping, so that there is no danger of a premature explosion of the dynamite. This method of firing the charge at the bottom of the bore hole is said to have the advantage that combustion on explosion is complete, and, consequently, without the development of smoke, so that the workmen can return at once after the firing of a shot to the face.

* Being Notes on a Course of Lectures on Mining, delivered by Herr Bergrath, Dr. VON GRODDECK, Director of the Royal Bergakademie, Clausthal, The Harz, North Germany.

IMPROVED MINING MACHINERY.

It has frequently been said that wherever mines are [illegible] there you will also find Cornish miners, and it appears certain that whatever practical difficulties may be met with in the shape of stubborn ore or unfavourable locality, so far as obtaining the usual machinery is concerned, Cornishmen are already with a remedy. As a result many important improvements are frequently made which in long settled districts would have been thought of. The names of Cornishmen are constantly appearing in various mining centres in relation to new inventions, and it seems that Mr. JOSEPH RICHARDS—who will be recollected by the readers of the *Mining Journal* from his being so long favourably known in the Tavistock district, where he was for years manager of a large number of mines, and mineral agent to [illegible] Fortescue—has been displaying his practical ingenuity at [illegible] Mountain, Nevada, where he is now engaged as superintendent for the Battle Mountain Company, which is composed chiefly of London capitalists, by inventing an improved concentrating mill, or an automatic buddle.

The essential features of the mill are the novel combination and arrangement of devices for sizing, separating, settling, and treating ore pulp, in order to concentrate and grade the particles of ore preparatory to subjecting them to the reducing process. The invention, therefore, resolves itself into a milling operation, the object of which is the mechanical separation of the different qualities and grades of ore, and the elimination, before final treatment, of the gangue, or worthless portion of the ore. To those who are waiting to be able to utilise low grade galena and copper ores this process will prove invaluable. The ore is first passed through a Blake stone-breaker, and from this it is still further reduced by passing through a pair of Cornish rolls with a stream of 10 [illegible] water. Two sizing boxes are mounted at one end of the mill structure, and into these the pulp and tailings are delivered by suitable spouts. These boxes are placed loosely inside of guides, and each one rests upon a suitable platform. A stem is arranged to project upward from each box, and on this stem is a tappet. A cam is secured upon a horizontal shaft above each box, in the proper position to strike the tappets and lift and drop the boxes, in the manner of operating stamps in a quartz mill. Inside of each box two or more inclined screens are secured, one above the other, each at a [illegible] screen being inclined in an opposite direction. The fineness of these screens is graded from the top down. An opening is made in the sides of the boxes at the foot of each screen, and a shoot leads from each opening down to an elevated tank, which is mounted on legs on the floor below. By inclining each alternate screen in the opposite direction one-half of the shoot and one-half of the opening will be on each side of the sizing-boxes. The pulp, therefore, as it falls into the sizing-boxes will be secured by the upper screen, so that only the coarsest portions will be delivered into the first shoot and pass into the outside tanks. The second screen will separate a second grade, and its shoot will direct it into the tank on the opposite side, and so on down, separating the grains according to their size, until the slimes pass off through a spout at the foot of each sizing-box, which conducts them to a series of settling tanks.

The pulp which accumulates in the elevated tanks is occasionally drawn off into a car, and conveyed to the opposite end of the mill, where it is dumped in equal proportions into two spouts, which deliver the pulp into the concentrator; this consists of three tanks. Inside of the middle tank is a plunger, which is connected by a pitman, with a crank shaft above, so that it is kept in constant motion. The outside tanks are connected with the middle tank by an opening at or near their bottoms, and a gate is arranged to regulate the size of these openings. The spouts deliver the pulp into the outside boxes, in each of which is placed a screen. A quantity of water is admitted into these tanks, so that the action of the plunger causes the pulp to be thoroughly washed and separated from any fine portion which might have found its way into the tanks. The portion of the pulp which remains above the screens is occasionally skimmed off and carried back to the spout at the foot of each sizing box, where it is mixed with the slimes and is subsequently treated with them, while the portion which settles through the screens is drawn off through the doors or gates in a clean condition, ready for subsequent treatment. Two sets of these concentrators and washers are employed, one set being on each side of the mill, and each set serves to treat the pulp which is taken from one of the sizers. Usually the inventor constructs boxes with only two spouts, which carry off the skimmings, and thus render the operation continuous.

The slimes which, as above stated, pass off through the spouts at the foot of each sizing-box, together with the settlings and skimmings from the concentrators, which have been added to them, are conveyed by a series of troughs to a tank, into the bottom of which a stream of water is delivered through a pipe which leads from an elevated reservoir. This upward-directed stream of water carries the pulp, and by its upward action carries the lighter portion of the slimes over the lower edge of the tank and through a spout on to a series of settling tanks. The first 10 settling tanks have a hole in its bottom, in which a tapering plug is secured. Each plug has a stem extending upward and passing through a cross-bar which extends across the top of the tank, so that the conical plug can be removed or lowered as desired, in order to adjust the size of the opening according to the quantity of pulp it is required to draw off. The stuff which passes through these holes is received into closed tanks below, in which the particles will settle to the bottom in part in a properly cleansed and concentrated condition, leaving the lighter portions on top. The heavier portions of the slimes delivered into the tank by the spouts will settle down through the water in the bottom of the tank, and be conducted through a spout to the next tank, from which it overflows into another tank, in a fit condition to be subjected to the reduction process.

This system of ore washing, concentrating, and sizing apparatus is nearly automatic in its operation, so that the ore is put in proper condition for treatment at a slight expense. This concentrating mill was erected and started to work in the latter end of June [illegible] and has been in successful operation ever since. The ores treated therein have been low-grade copper ore, from 6 per cent. upwards. This ore is usually manipulated so as to bring 5 or 6 tons into 1. The ore, after concentration, assays 30 per cent., sometimes more and sometimes less, according to the grade of the ore worked. The ores are first crushed in a Blake crusher, and then by Cornish rolls to from ½ in. to 1-12th in. in size, depending on kind and quality of rock; any other size for any other kind of ores may be found more advantageous. After the ores are crushed the largest portion is made to undergo a jigging process, which concentrates it all. The operation. The slimes are most effectually treated by a very simple operation, which separates all grit and mud, when both can be treated by buddles, &c., which are very simple in operation. The process is known as the wet concentration process.

With regard to the buddle the improvement consists in a [illegible] arrangement for automatically discharging the pulp upon

ined surface of the buddle, and at the same time delivering upon the inclined surface by the same automatic arrangement any number of moving uniformly directed jets or streams of water for washing the ore and carrying away the light portions. The bottom of the circular pan is inclined, or convex. In the centre of the pan is a circular raised portion, the surface of which is inclined or sloping from its centre to its outer edge. A timber extends horizontally above the centre of the pan, and is supported by uprights. A vertical shaft steps in the centre of the raised portion of the pan, while its upper end is secured in a suitable bearing in the cross timber. An upright cylinder surrounds the shaft, and is permanently secured to it, so that it will not rotate with the shaft. Outside the cylinder another cylinder of larger diameter, but which is shorter than the other cylinder, is secured, so that both cylinders will rotate with the shaft. Hollow arms extend outward horizontally from the inside cylinder. These arms pass through the outside cylinder, and extend to the centre rim of the pan, and are slightly curved in one direction. Short hollow arms project horizontally from the outside cylinder, and extend out to the outer rim of the raised portion. The outer ends of the tubular arms are closed, and a small hole is made on one side of the arms, above the outer rim of the raised portion, while a number of small holes are made along one side of the arms, above the inclosed surface of the pan, outside of the raised portion.

It will now be perceived that this combination of upright shaft and radiating arms form a compound Barker's mill, which will be actuated by the reaction of the water which escapes from the holes in the arms. In practice the pulp is delivered by a sluice trough, or other means, into the upper end of the outside cylinder, while water is delivered by a suitable spout into the inner cylinder. The water will then fill the arms, and be delivered in a line of small streams through the holes upon the inclined surface of the pan. The action of this escaping water will cause the entire device to rotate in a direction opposite to that in which the streams are projected. At the same time the pulp is discharged through the holes in the arms, upon the outer edge, or near it, of the raised platform, and flows down along the inclined bottom of the pan, where it is acted upon by the small jets or streams of water by which it is washed, and the lighter matter is separated. This arrangement of the water jets forms what Mr. Richards calls a hydraulic brush, which is automatically caused to sweep over the surface of the pan on which the pulp is spread, and the gentle washing action separates the particles, and carries off the lighter portion down the incline, without flowing or disturbing the body of pulp. This device is extremely simple and inexpensive, as the operation is continuous and automatic, the entire operation being obtained by the hydrostatic pressure in the inside cylinder.

Fenton's Patent Method of Fitting Up Wheels on Axles.—At the Bridge Street Works, of Messrs. Joseph Fenton and Sons (Sheffield, in the presence of a number of colliery managers, engineers, and other gentlemen, their patent method of fitting up wheels and axles was put through a very severe test on Friday. A pair of 11-in corve wheels fitted on axles, selected from a pile of some hundreds by one of the gentlemen present, were taken up to the top of the works, at the least 35 ft. in height, and literally thrown down on to the iron plates, but without either breaking the wheels or in the slightest degree disturbing their patent fastenings, and this test was repeated half a dozen times with the same result. The next test was that of throwing the wheels and axles as great a distance as possible on to the iron floor of the works, but this also was of no avail, and failed to make the slightest impression on either. Then several of the gentlemen present took their turn at them with a very heavy sledge-hammer, but a good 15 minutes hard labour was entailed upon them before they managed to fracture one of the wheels, and this was only at last accomplished in the weakest part of any wheel between the spokes. The next test was tried on the fractured wheel, in order still further to ascertain the quality of the steel. This was taken off the axle and placed in the smith's fire, and part of the flange heated to a white heat, under the superintendence of Mr. Quilter, of Barnsley, when it was found that the arms although they did not separate from the rim, and after the heated part of the wheel had been plunged into cold water, it was several times heated, and put into water till cold, when it was again attacked with a sledge-hammer by a worthy son of Vulcan, but he could only then manage to fracture it between the spokes—thus proving, beyond doubt, the specially tough quality which Messrs. Fenton and Sons claim for their steel. The gentlemen then inspected the works, which are very extensive and most complete in every respect, and capable of turning out the very largest steel castings which may be required.

Technical Education, and the City Guilds.—The exhibition at the Mansion House of the articles sent in for competition for the prizes offered by the Worshipful Company of Turners was this year a very successful one. The subjects of competition were turning in ivory, pottery, stone, and jet; and steel, brass, and gold for horological purposes. The competition in ivory included vegetable ivory. The qualities considered in awarding the prizes were: Beauty of design, symmetry of shape, utility, and general excellence of workmanship; exact copying, so that two objects produced should be facsimiles in every part, or exact measures of capacity; fitness of the work or design for the purpose proposed; ability to turn, whether circular or oval; and novelty in application of turning or in design; colouring was admissible, but it was to be subsidiary to the turning. Each candidate was to make his own selection from the above conditions; but the one who best fulfilled the largest number, including the most important qualities, was preferred. The work to be all hand turning produced in the lathe without special rest or tool apparatus, and the carving to be the work of the exhibitor. The prizes were distributed in the Egyptian Hall by the Lord Mayor, the Lady Mayoress and a large number of ladies being also present in addition to the leading members of the company. Mr. R. L. Loveland, the master, in thanking the Lord Mayor for his courtesy to the guild, remarked that this was the seventh year that their exhibition had been held at the Mansion House. The judges in ivory were Messrs. H. Gregory, T. B. Winser, and M. Yeatman; in pottery, Messrs. J. Holzapfel, A. J. Copeland, and H. Doulton; in stone and jet, Mr. Gilbert Scott, Dr. W. Pole, Mr. W. V. Simons, and Prof. Tennant; and in steel brass, and gold (for horological purposes) Sir J. Bennett, Bart., and Messrs. J. Jones, S. Jackson, and L. Donne. The remarks of the judges spoke with reference to the exhibition, and the observations of Messrs. Doulton and Jones are worth recording. Mr. Doulton remarked that the art of pottery was in every respect most interesting, and he impressed upon them that the objects before them were the results of individual skill, and that they had not been drawn from moulds. It was gratifying to the judges to see the exhibition so interesting and instructive. He felt much indebted to the company for having instituted a movement of this kind. It appeared to him that the guilds of the City had, if they would rise to a sense of their responsibilities, a great future before them. He believed the hospitalities and charities of the companies were widely dispensed; but it should be borne in mind that in these days there was a need of the stimulus which flowed from exhibitions of this kind. As universities were wanted for the higher intellectual culture, so were industrial universities wanted for the development of the skill of the handicraftsman. He was glad to know that a movement to supply this necessity was being made by men of eminence. Mr. J. Jones spoke of the importance of exhibitors of skill in workmanship in promoting the prosperity of the country, by maintaining its excellence of manufacture, and denied the statement that had been made that money alone was the incentive for exhibitors to send in their works, but attributed the success of the exhibition in the main to the honour to be derived from acknowledgment of superiority. The prizes which were distributed last week were—in IVORY: First prize, bronze medal and 5*l.* to Mr. J. Bray, of Queen's-place Hoxton-street; there were three other certificates and money prizes; in POTTERY: first prize, freedom of the company and 5*l.* to Mr. E. Bryon, Princes-street, Lambeth Embankment; there were eleven other medal, certificate, and money prizes; in STONE and JET: first prize, silver medal and freedom of the company, Mr. J. Nankervis, Ruan Minor, Helston, Cornwall; second, bronze medal and 2*l.*, Mr. W. Coulman, Royal Marble Works, St. Mary Church, Torquay; third, first certificate of merit and 2*l.*, Mr. W. J. Coulman, marble mason, Barton-road, Torquay; first certificate of merit and 2*l.*, Mr. J. Ede, Market-place, Penzance; fourth, second certificate of merit and 1*l.* 10*s.*, Mr. W. Ede, Market-place, Penzance; fifth, 1*l.*, Mr. J. Boden, Prospect Cottage, Matlock, Bath; sixth, 1*l.* Mr. J. Britland, marble worker, Cromford, Derbyshire; seventh, 1*l.* Mr. J. Boden, jun., Matlock, Bath; and in STEEL, BRASS, and GOLD first prize, silver medal and freedom of the company, Mr. C Crisp Brighton-road, Stoke Newington. There were eight other prizes. The proceedings terminated with the usual complimentary votes.

INCOMBUSTIBLE SILICATE COTTON.

Reference has several times been made in the *Mining Journal* to the utilisation of slag by converting it into a uniform filamentous condition, in order to render it applicable as a substitute for felt and similar substances, more especially as a non-conductor, and Messrs. JONES, DADE, and Co., of Leadenhall-street, have now introduced it to an extent which leaves no doubt as to its practical utility. The patent incombustible and indestructible silicate cotton, for such is the name under which it is sold, has proved to be especially valuable for coating boilers, cylinders, and pipes, and has also been largely used for filtering, lining floors, ceilings, fire-proof rooms, ice safes, and such like. The utilisation of slag has formed the subject of almost as many patents as the manufacture of peat, but by far the larger number have resulted in failure, and so far as slag is concerned it still continues a waste product, and, notwithstanding its partial utilisation, the vast deposits of it still continue to increase. It is mentioned that processes for converting this refractory material into sand, and subsequently into bricks, mortar, concrete, and cement, are being employed on a practical scale both in England and on the Continent. In Belgium it is likewise used in the manufacture of glass, contracts being entered into with the proprietors of blast-furnaces for a regular supply. Some time ago a process was introduced for forcing a blast of steam or superheated air into the stream of viscous slag as it runs from the furnace, and by this means a substance is produced somewhat resembling spun glass. By this means, however, and with ordinary appliances, very little could be produced, so that no use was made of it, and it was not until two years since that the subject has been revived.

The silicate cotton brought into the market by Messrs. Jones, Dade, and Co. is a pure fibrous slag, and it is stated that the apparatus for producing it in such a high state of perfection, so thoroughly freed from all solid matter known as shot, and for giving it that extreme lightness which it now possesses, is a very expensive one, and is the result of a series of experiments which have extended over several years. It is claimed that this peculiar treatment so completely differs from the old idea that nothing but the principle remains. It imparts to the slag such a finely-divided character that some portions of it resemble in appearance the finest cotton wool, and are so light that 1 ton weight covers an area of about 1200 square feet at a thickness of 2½ in. This slag wool or silicate cotton, a name given to it on account of its silicious properties, and its resemblance to cotton, is a remarkably strong non-conductor of both heat and cold, and has, as such, been found to be a most useful, and, in fact, the best and most powerful means of arresting the spread of fire and frost. Its complete incombustibility, the resistance it offers to wet or outside temperature the, action of chemicals, &c., which makes it almost indestructible by any known agent, its white colour and its peculiar property of harbouring a large proportion of atmospheric air, both of which properties greatly aid its non conducting qualities, render it the most efficacious article for the purposes mentioned.

For the coating of steam boilers, cylinders, steam domes, and so on, the silicate cotton would appear to be especially valuable; it is economic, durable, and very easy of application. It can be applied in the same way as felt underneath wooden lagging or sheet-iron. In the case of wooden lagging the grounds or runners are put on in the usual way. After they are fixed the silicate cotton can be stuffed or filled in under the lagging and into the open spaces as the laths are nailed on. These must, of course, be beaded, feathered, grooved, and kiln-dried to prevent their warping afterwards. The cotton must not be stamped in so as to crush it, but must simply be loosely pressed, so as to thoroughly fill the open spaces. For marine boilers the cotton is generally applied 1½ to 2 inches thick over the tops, as well as on the domes, and from 2 to 2½ inches on the backs, or out to stay ends. On land boilers the cotton is applied a little thicker. After the lagging is fixed on, iron bands must be fastened on to further prevent warping; the whole must then receive two coats of oak varnish.

Another method of applying the cotton is Stewart's patented principle, which consists of enveloping the cotton in a kind of bag, shaped and sewn like a mattress, 2 to 2½ in. thick, 1 ft. broad, and 2 to 3 ft. long, according to the surface to be covered. These mattresses are made of a peculiar kind of canvas, can be cut to suit any shapes, and in order to keep the cotton in them compactly together when placed against vertical sides, they are stitched right through with twine at intervals of about 2 in. Their application is also very simple and easy. All that has to be done is to place and sew them as closely as possible together over the surface to be coated. They can then be covered with packing or sail cloth. In order further to strengthen the mattresses, galvanised wire netting should be closely fastened over them, and iron bands passed over the whole in such a manner as to enable them to be easily taken off in case of repairs. Owing to the radiation along the meshes of any heat which might come into contact with the covering, a conflagration is rendered impossible. This mode of application is a very inexpensive one, and certainly appears preferable to any other. Already the Lords Commissioners of the Admiralty, and the Corporation of Trinity House, have adopted the invention, and it has been largely used by the leading railway companies, steamship owners, and manufacturers. For mine boilers, especially where the houses are in exposed positions, as they very frequently are, the coating would appear to be well worthy the adoption, and the saving of fuel would no doubt soon repay the outlay which its application would entail.

Gold Mining in the Transvaal.—Messrs. H. C. M'Donald and Co. are inviting subscriptions for 3000*l.*, in 12 sums of 250*l.* each, to acquire the right to one half share in the BLUE BANK GOLD REEF, situated two days' journey from Pretoria, the capital of the Transvaal, towards Potchefstroom. The concern is to be conducted by Mr. G. P. Moodie, of Pretoria. As it may hereafter be deemed desirable to increase the plant and machinery in order to gain larger returns, the subscribers are to agree that a further sum not exceeding 3000*l.* shall be raised upon the security of their half of the property, and shall rank equally with the 3000*l.* now invited to be subscribed; 6000*l.* is then to be considered as holding one-half of the reef. This is not to constitute a co-partnery between the subscribers, and as soon as the 6000*l.* is all subscribed a limited company is to be formed, in the direction and control of which the subscribers of the 6000*l.* shall have one-half voice and control, and the present proprietor (Mr. A. Brodrick) the other half. Meantime a full account of the working and results shall be forwarded every three months to each subscriber. As security for the *bona fides* of the undertaking, each subscriber of 250*l.* is to hold a 1-12th interest (worth about 125*l.*) in a 6000 acre farm at Lydenberg. Messrs. Johnson and Matthey report selected specimens with visible gold to yield 7 ozs. 12 dwts. of gold to the ton, and the ore in bulk from traces to 1 oz. 3 dwts. Messrs. Johnson and Sons report 1 oz. 12 grs. and 1 oz. 7 dwts. 12 grs. respectively to the ton. The seven claims in this property include 1050 feet on the lode and 200 feet wide, and the tenure is a "full government title guaranteed according to the gold law of the colony." The money is wanted in sums of not less than 250*l.*, half of which is only now required; and every shilling is to be expended purely and solely for necessary plant and appliances, under the eye of an agent to be appointed by the subscribers. There will be handed over in trust for the subscribers a free Government title to 6000 acres of fine farm land as a security for the *bond fides* of the undertaking until its genuineness has been proved. 1700*l.* has already been expended in its development, and from careful surveys by competent authorities a very large return is expected. The prospectus will be found in another column.

Meetings of Public Companies.

LAST CHANCE SILVER MINING COMPANY OF UTAH.

An extraordinary general meeting of shareholders was held at the City Terminus Hotel, Cannon-street, yesterday,

Mr. C. C. ADLEY, C.E., in the chair.

Mr. J. BUTLER WILLISON (the secretary) read the notice convening the meeting. The report made by the Chairman on the property of the company, which had been circulated amongst the shareholders, was taken as read.

The CHAIRMAN said—Gentlemen, this is the first time I have had the honour of meeting you as the Chairman of the company, and we deeply regret that your late Chairman—Mr. White—was obliged to leave us through ill health, for his valuable services and eminent abilities have been a great loss to us. When we last met you were informed that certain proposals had been made to your board by the Chairman of the Flagstaff Company, coupled with an urgent appeal that we should at once, without a moment's notice, without any enquiry, upon a mere telegram, and under an alleged peril of utter extinction if we delayed, blindly surrender your property, absolutely and entirely, to a complete stranger to us—their manager, Mr. A. G. Hunter, upon most onerous and exorbitant terms. These demands, though supported with all the weight and eloquence of the Flagstaff Chairman, were declined. You were informed that other negociations were then pending with a substantial London firm for the leasing of your mines for a term of years, and a director was selected by the shareholders then present to join the board and assist in carrying out the proposed arrangements. These arrangements fell through, and you will see in the sequel that it was most fortunate for the company that it so occurred. In the report circulated a full description is given of your valuable property, and I shall now place before you such further information as will enable you to better understand your position. At the time of my departure for America the company was represented to be in a most forlorn condition. Their property was attached, and because your board, as already explained, had declined to accede to Mr. Hunter's summary demands judgments had been entered against your company for a large sum; all your personal property had been sold off beyond redemption, and the sale of your real estate would speedily follow. One correspondent stated that it would require 10,000*l.* to clear the pressing local debts, and 5000*l.* more to start the mine. Another said he thought a sum of not less than 15,000*l.* to 20,000*l.* would be required to clear the mine. The company was pronounced ruined, their case hopeless, and all this destruction arising from the indifference of shareholders and apathy of directors; and then with sublime *naiveté* one writer generously offers to lease the lost and ruined concerns for the company for ten years, at one-half the net profits, and manage them for an additional 1500*l.* a-year, on condition that we sent him out 15,000*l.*, while his magnanimous colleague strongly recommends us to appoint his brother as our solicitor, at 1000*l.* a year. It is remarkable that in the letters just referred to nothing was specifically declared regarding the judgments and debts of the company; no particulars were given, nor was it stated on whose account the judgments and sales were being made, but it was left to be inferred that all were new and of recent creation. At the same time your board had grounds for believing that these statements were exaggerated, if not departures from facts, and that the company were far from being reduced to the desperate condition described. Moreover, from the anxious solicitude evinced for your welfare by strangers, and the eagerness displayed to get possession and control of your property, it was manifest that it must be of very considerable value. A few days after my arrival at Salt Lake City, and taking possession of your mines, it was found that upon a judgment for 1415*l.* purchased in by Mr. Hunter, all your personal property, to the value of about 1800*l.*, had been sold off by him absolutely and without redemption on Feb. 19 last, for the nominal sum of 57*l.* This had been bought in by the solitary bidder, Mr. Hunter, who has doubtless explained all this to the Flagstaff Company. A portion of this property—namely, the ore on the dumps—Mr. Hunter re-sold for about one hundred times what it cost him; another part (the pumps) was removed to the Flagstaff Mine, and are now pumping their water instead of ours, and the residue, including the engine bought in by Mr. Hunter for 25*l.*, he offered to re-sell to the company for 270*l.* The engine which was still on the mine had been wilfully crippled by removing the connecting-rod and cylinder-cover, in order purposely to prevent the company from making any use of the same. It was further ascertained that on subsequent dates the mines were sold by Mr. Hunter on the above and another judgment for about 2000*l.* These sales were subject to redemption by the company in six months—on Sept. 7 and 15 last, and have been duly protected and redeemed. Besides these there was an old claim renewed by the Flagstaff Company for 370*l.*, with interest. This, it is notorious, is an unjust claim, based on a transaction regarding some ores that occurred about four years ago. It was, moreover, adjusted at the time, and there was money due to the Last Chance by the Flagstaff at the time of settlement. A statement to that effect was made at the time, and handed over by the retiring manager to his successor in writing. These matters are well known, and hence the subject was considered of no moment by the boards of the two companies for the time being, and mutually allowed to remain quiescent. Under a change in the Flagstaff direction and to the Hunter management this long-dormant question has been re-opened, as a means to an end, and when it came before the Salt Lake Court in March last the Judge refused execution at first, owing to lapse of time, but afterwards granted an adjournment for 30 days. In the interim Mr. Dunne, acting with Mr Hunter, illegally declares himself our attorney, turns out our manager, and under cover of this false assumption of authority Mr. Hunter's private attorneys, Messrs. Rossborough and Merritt, who are also acting conjointly with the Flagstaff attorneys, are appointed to appear for us on the adjournment. Under such a pretentious defence, when the case came on again for hearing execution was allowed to issue, and the mines and furnaces were sold by the Flagstaff Company for 5000*l.* The Flagstaff Company though doubtless aware of these facts, maintain their claim. It has, therefore, been found necessary, in the protection of your interests, to file a bill against the Flagstaff Company, to obtain an injunction to set aside this judgment and sale, and the Court has granted permission to move for the same. As a further precaution and protection a counter action has been brought against the Flagstaff Company to recover from them 360*l.* with interest, for rental of the Last Chance furnaces for three years, from Oct. 1, 1873, to Oct. 1, 1876. This will about cover their alleged claim against us. In addition to this counter claim we believe we have other claims against the Flagstaff Company for large amounts. You will readily understand how such large claims have arisen when you are informed that at that period, in 1873, the Flagstaff Company had received from our mine about 4000 tons of ore, of the value of over 50,000*l.*, the accounts for which are still unsettled. We have, therefore, substantial grounds for believing that when these accounts are investigated and fairly adjusted our claims against the Flagstaff Company will reach to something very considerable. It may be added here that we have also a claim against the London firm, previously referred to, for serious damages, owing to the irregularities of their agent, Mr. Dunne, in America, but this will be best explained to you by our solicitor, if you think it desirable that the question should be gone into at this meeting. You will thus perceive that, apart from the very questionable Flagstaff claim, and any claims of Mr Davis or his agents, the local, just, and pressing liabilities stated to amount to from 10,000*l.* to 20,000*l.* did not exceed 2000*l.*, and that had it not been for an unwarrantable and unauthorised interference in your affairs the ore on the dumps would have mainly provided for these debts, and the small balance could have been easily adjusted. The company therefore, at the present moment would not have been called upon for a single penny. As matters stand, however, the Flagstaff Company's late manager in spite of professed friendship makes a large profit out of the Last Chance Company's personal effects, throws on us the additional burden of raising funds to replace machinery, tools, stores, &c., sacrificed by him, and saddles the shareholders with providing for debts of 2000*l.* at the risk of losing their property, which debts he could have nearly wiped off with the assets at hand. It remains for Mr. Hunter and the Flagstaff Company to reconcile these acts with their professions, and with the amiable proffers simultaneously conveyed in Hr. Hunter's letter to your board of the 26th February last, wherein he states—"I am more than anxious you should have every opportunity to make some money out of your property than secure an undue advantage for myself, and I believe this is also the feeling of those for whom I act." As an illustration of the manner in which information was suppressed and mystified Mr. Hunter, in the letter I have alluded to, stated—"An application for a United States land patent conflicting with yours is now pending," thus casting a doubt on our title. The fact is, a patent had been applied for, but it in no way conflicted with your patents, for it went a long way outside it altogether. It did, however, interfere with our boarding-house and offices, which were situated on separate land, but the applicant had specially excluded these from his application, and had executed a deed to that effect. You must pardon me for having been somewhat diffuse on these points, but incorrect statements having been circulated, it is only right that you should know the exact details, in order to form your own opinions as to these transactions, and judge for yourselves. A large number of you are also shareholders in the Flagstaff Company, and there is, therefore, the greater reason why you should be made acquainted with the precise circumstances. You must also understand that the Flagstaff Company have been the aggressors in every instance to our injury, and that we have been only acting on the defensive. He now came to the arrangement with Mr. Davis, whose claim the shareholders are aware arises from an old agreement, under which we have all along been working. The total amount of this claim is 41,938*l.*, and on my return to New York papers were presented to me regarding it. I therefore saw Mr. Davis on the subject, represented to him that litigation would be costly, tedious, and uncertain, and at that

Lectures on Practical Mining in Germany.

CLAUSTHAL MINING SCHOOL NOTES—No. XLVII.*

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Section III.

Tamping.—After the charge has been placed at the bottom of the hole the needle is introduced, the point of which is let well into the charge of powder, and the hole is then filled with tamping. As powder can be ignited by compression, care must be taken at the commencement of tamping; a little wadding of either hay, straw, turf, or even a small stopper of soft wood is, therefore, placed immediately over the powder. The tamping itself usually consists of the dust and broken pieces of the rock itself, provided it is a rock which will not strike fire—marls, loam, clay, which are free from grains of quartz, broken brick, or sand. The object of tamping is to obtain as great a resistance over the powder as possible, or rather a resistance greater than that which the rock offers to being loosened. At Clausthal, in the Hartz, the clayslate of the district is used as a good material for filling up the bore holes. It is first pounded to a fine powder under a pair of stamps, and after being passed through a fine sieve is moistened with water, and made into oblong slabs, which are left in the air to dry. When the miner requires a piece for tamping he breaks a portion off from the larger slabs, and drives it into the hole. The oldest method of tamping was by means of a wooden plug driven into the hole, the plug containing a small hole for the train of powder. Sir J. Burgoyne, who has tried conical shaped plugs placed immediately above the charge, the rest of the hole being filled with moderate sized pieces of rock, and barrel-shaped plugs driven in above a loose sand tamping, finds that in every case they offer much less resistance to a sudden explosive force than to one gradually applied. The old method had the drawback that the powder might be ignited during the process of tamping, and these newer proposals, besides not offering the same amount of resistance as a solid clay tamping, are open to the objections of loss, difficulty in removing them when a shot failed, and the workmen might readily employ plugs which are not of the exact size, besides the diminishing the simplicity of the blasting operations.

Tamping with sand was introduced by M. Baduel during the construction of the Simplon Pass, in 1805, and later by M. de Candolle at Mont Cenis; but in both cases, although some good results were obtained in blasting loose masses of rock, or rock where at least two sides were exploded, in the solid rock the sand was blown out without splinting the rock. It was expected that the sand being in a loose condition the shock of the explosion would not be transmitted to the outer portion of the sand tamping before the decomposition of the powder was complete, and consequently before the whole force of the explosion was developed, in which case it was expected that the rock would be at once shattered. Trials at the Hartz, Saxony, and Pesay have confirmed the above results, so that, notwithstanding the advantage of first less cost, simplicity, and absence of danger, its use has been abandoned.

It is well known that all the powder is not decomposed, but that sometimes it is blown out by the explosion before complete decomposition has taken place. In order to obviate this, and to obtain the advantage of the whole expansive force of the powder, M. Hausmann introduced at the copper mines of Roeras, in Norway, and afterwards into the Hartz, the so called "hollow tamping"—that is to leave a small empty space immediately above or below the powder. This object was attained by placing a small conical or double T-shaped air stopper immediately above the charge. It was said that by this method a saving of 25 per cent. in powder was obtained.

Firing.—The needle having been withdrawn leaves a small circular channel, destined to transmit the ignition from the mouth of the orifice to the bottom of the charged hole. In this channel fine-grained hunting powder is poured, often loose, but more generally first into some kind of small tube, which latter is then inserted in the orifice. These tubes are made of reed, elder, hazel, but most usually straw. The miner chooses a long stalk, and cuts it below two consecutive knots, so that the one end is open and the other end closed by the knot. This latter end he scrapes or pares pretty thin, so as to allow of the ignition being quickly communicated to the powder in the hole. The straw is now suspended in the orifice by means of a small lump of soft clay, the knotted end being directed downwards; a sulphur match, made of a short piece of hempen string dipped in sulphur, is attached to the open end of the straw, and communicates the ignition to the powder, and the reaction of the gases developed against the air forces the straw and powder to the bottom of the orifice igniting the charge. If the hole is deep a series of these straws are inserted at the ends into each other, and introduced into the opening. Small rockets have also been manufactured for the same purpose: they are made of paper or reed tubes, which are first split open, and then covered inside with a powder paste.

In firing under water it is necessary to modify the arrangement of the charge and the fuse. The tubes for the fuse are them made of wood, linen cloth, or pasteboard tarred over, and are inserted in a cartridge, likewise made watertight.

In 1831 a patent was granted to W. Bickford, of Tucking Mill, Redruth, Cornwall, for an instrument for igniting gunpowder when used for blasting rocks, which he denominates the "Miners' Safety-Fuse." This fuse is described as a cylinder of gunpowder or other explosive compound, inclosed within a hempen cord, which is first twisted, and afterwards overlaid with another cord to strengthen the casing thus formed, then varnished, to preserve the contents from injury by moisture, and finally covered by whiting or other suitable matter to prevent the varnish from adhering. In order to make use of the safety-fuse the miner unravels part of one end, and inserts this end into the cartridge containing the charge. He then squeezes the cover of the cartridge close against the fuse, and ties it tight with the unravelled strands. The proper length of fuse is cut off before placing the charge in the hole. Originally two sorts were manufactured, now there are three, for dry holes, damp holes, and for blasting under water. The great advantages of the safety fuse are that it can be used in damp holes, and the use of the needle is avoided; but they possess the disadvantage of increasing the cost, rendering the air bad, the covering smoulders or glows after the explosion, which in fiery mines would be a continual source of danger, though in such a case the use of powder itself forms the greater danger of the two.

A new safety-fuse, manufactured by William Mills and Co., consists of narrow strips of paper saturated in a solution of equal parts of potassic-chlorate, a ferro-cyanide of lead in alcohol, and surrounded by hemp, or the like, which has been dipped in tar. The ignition is transmitted with such rapidity that the cover is not ignited. Rjiha, of Vienna, has invented a safety-fuse which is said to possess the advantage over Bickford's fuse that it leaves no oppressive smell behind, and that whilst it possesses sufficient stiffness for insertion in the bore hole it is flexible enough to be coiled up and carried in the pocket, and the covering is not also ignited. The fuse burns at the rate of about 3 ft. per minute, and stands the damp and wet of a mine very well, although when used for blasting under water it is usual and necessary to smear it over with india-rubber dissolved in sulphur. It is, however, 50 per cent. dearer than Bickford's, and as it burns without light or smell the miners cannot follow the point where it burns, which in case of supposed misfire, &c., must be considered as a disadvantage.

Whitehorne's Britannia safety-fuse consists of a core made up of a number of yarn threads dipped in a solution of saltpetre, which are twisted round a core of powder: the surface of the core is covered over with tar or pitch, and then with two long strips of paper or felt. These two strips are cut so broad that they cover exactly one-half the circumference, and are pasted over. The core and covering are lastly surrounded by a covering of cotton, and the whole is then drawn through a bath of pitch or tar, to render it water-tight, which after being rubbed over with whitening or with gypsum is ready for sale. The advantages appear to lie in the protecting nature of the covering against damp, &c., and in the cheapness of the manufacture, but the disadvantage of the molesting nature of the products of combustion has hitherto prevented its extensive use in mines.

The chief advantages in the use of safety-fuses over the ordinary method are—the danger which always attends the use of the needle is avoided—in firing the comparatively small charges which are made use of in a mine the opening made by the needle, or the fuse hole, tends very much to reduce the effect, for after the burning of the powder in the usual manner in the straws the hole is open to a considerable extent, and the gases first developed can partly escape through this orifice, and besides the powder is by this means ignited at one end of the charge, and the decomposition of the whole mass takes place more slowly than if ignited in the centre of the charge, as in the case where the fuse is used—the loss of time occupied by the miner in filling the straws and making a slow match is avoided. The advantages are chiefly in quarrying and in open excavations, where the holes are of great depth, and the object is to loosen a large quantity rather than a definite portion, as is the case in the levels and workings of a mine, where besides there is often only one free surface to the portion intended to be dislodged.

Firing by Electricity.—It has long been a favourite idea with many persons connected with mining that if the holes which are being bored at the bottom of a shaft, or at the end of a gallery, are fired simultaneously not only is the time saved which is generally lost by the cessation of boring during the firing of one hole, but that a greater effect is obtained from the powder, due to the fact that the explosions are simultaneous. It is probably due to this opinion that the use of electricity for firing off charges is becoming more common. During the sinking of the Abercarn Pit, Newport, electricity was made use of in firing the charges. Two of Grove's batteries, on account of the greater strength and convenience of this form of battery, were used for this purpose, each containing six elements of zinc and platinum; the poles were connected to two long copper wires covered with gutta-percha, which were led down the shaft. A short cylinder, about ¾ in. long, of elder, in which the two ends of the wire are inserted, is laid upon the charge. The wires are covered with gutta-percha, except at their extremities, which are united by means of a thin platinum wire. The lower part of the cylinder is filled with hunting powder, which surrounds the platinum wire. The cylinder is laid upon the powder at the bottom of the bore hole, and the wires must be sufficiently long to project out of the hole, and the tamping is placed over the charge in the usual manner. One of the wires from one of the holes is connected with that from another, so that only the two extreme bore holes have one wire each left free, and these are connected with the conducting wires laid down the shaft. As soon as arrangements at the bottom have been completed the current is closed at the surface, and the holes are thus fired off simultaneously. The connecting wires were generally so much injured as to be of no further use, and the cost of igniting each separate charge amounted to from 2d. to 3d. by this method.

Bornhardt, of Brunswick, has constructed an electric machine specially for mining purposes. It consists of a disc of hardened caoutchouc, with a rubber of prepared felt, the whole together, with the condenser, being enclosed in a box 16 in. long by 8 in. broad, by 12 in. deep, the cover fitting air-tight. The friction disc, 9¾ in. in diameter, is fastened on an iron axis, which fits into sockets in the side of the box, so that a small handle can be fixed on to the axis from without, without the necessity of opening the box. With eight turns sparks ½ in. long are obtained, and with 25 turns sparks 1 in. long are obtained. It is not specially required to isolate the conducting copper wires; they can be laid on wet stones, and still at a distance of 300 ft. be made to ignite simultaneously several charges. The wires have even been laid in snow, and at a distance of 50 ft. Ten cartridges have been simultaneously fired.

Herr F. Abegg, of Bistritz, in Bohemia, has often made use of electric machines for mining purposes. In the machines he used the disc was made of specially prepared india-rubber, and there were eight felt rubbers. The electricity was collected in a condenser of india-rubber 12 square feet area, so that a spark of but small intensity was sufficient. The machine was enclosed in a box 9 in. long by 9 in. broad by 4 in. deep, which was made air-tight, so that the machine could not suffer from damp. The box is provided with two handles, which are connected with the machine; one of these handles which passes through an india-rubber tube into the box can be drawn out to various degrees, thus regulating the tension in the condenser according to the number of holes required to be fired in open quarry work, and the like 30 shots can be fired, and about half that number in the mine. In charging the holes the lower part is filled with a mixture of one part of unpolished blasting powder and three parts of sawdust, and above that a charge of powder (unpolished) alone. The reason why unpolished powder is used is that graphite, with which powder is usually polished, is a conductor of electricity, so that if polished powder were used the current would not be broken, and, consequently, pass through the charge without a spark. On the top of the powder the cap to which the ends of the wire are attached is placed, and the tamping which is more or less damp is rammed down; this must not be rammed in too tight, as the slight conducting power of the powder is thereby increased. With a few turns of the machine the spark should spring across the ends of the wires in the cap exploding the charge. The conductors consisted of soft iron wire 2 millimeters (1-13th in.) thick, which was carried on wooden (hard) rollers, previously soaked in oil, at distances of from 30 to 40 ft., the last few feet could rest on the ground unless it contained metalliferous ore like to carry off the current. If the machine required a great number of turns to cause the spark to spring across there was probably moisture in the box or the friction disc required renewal, which with constant daily use was required every six months. In the former case the chloride of lime placed in the box to absorp the moisture required renewal. The caps used by Abegg consist of two fine iron wires attached to a piece of pastboard 1¼ in. long by ¼ in. broad, with their ends 1 millimetre (1-26th inch) apart, the pasteboard between and under the two points is rubbed with graphite in order to facilitate the ignition, fine powder is laid on the ends, and the whole wrapped in a strip of paper which is coiled round, the outside of the cap being covered with wax. When the spark springs across it does not ignite the powder direct, being incapable of doing so, but first makes the ends of the wires red-hot, and thus ignites the powder; this is facilitated by the graphite, which burns readily when the wires become hot. Such caps are only suitable for ordinary powder charges. This method of firing shots was the subject of very extensive experiments in the coal mines in the neighbourhood of Saarbrücken, which led to its general adoption in this district. The chief difficulty which was experienced was that sometimes one or two of the shots had remained unexploded; the remedy was found in the better insulation of the wires.

The above caps were suitable only for powder; for dynamite, &c., the cap consisted of a small lead cylinder, 2½ in. long, which contained a fulminating compound; two fine wires were inserted in the cap; to the ends of these longer wires were attached, and to isolate them they were fastened in slits cut in the opposite sides of a piece of wood ½ in. broad and 1-5th in. thick, the lead cap being attached to the end of the wood. In order to render the isolation more complete Abegg recommends the covering of the wood with a mixture of two parts of pitch and one of tallow. The stick is inserted in the hole in the same manner as an ordinary fuse. The wires from the machine are attached after the tamping, and after about fifteen turns of the machine the charges should explode. One machine should be capable of firing four shots at once. In the Westphalian mines where Abegg's method was tried the results were found not to be so favourable as at Saarbrucken; only two shots on an average could be fired at once. It is possible, however, that this may have been due, as Abegg supposes, to the incomplete isolation of the conducting wires, which would, however, make this method of firing more expensive (and he, therefore, recommends the use of telegraph cable wire), and also to the presence of moisture in the machine. According to Abegg, when the caps are placed on the top of the charge of dynamite it often happens that the cap is pushed back from the wood to which the wires are attached. In order to avoid this when firing dynamite charges by electricity, Abegg places the cap at the bottom of the charge; the dynamite charges are placed over these, and covered with a clay or paper stopper, after which the hole is tamped with small pieces of brick, &c. The piece of wood to which the cap is attached passes to the bottom of the hole, and possesses sufficient elasticity to render harmless the blow during the tamping, so that there is no danger of a premature explosion of the dynamite. This method of firing the charge from the bottom of the bore hole is said to have the advantage that the combustion on explosion is complete, and, consequently, without the development of smoke, so that the workmen can return at once after the firing of a shot to the face.

* Being Notes on a Course of Lectures on Mining, delivered by Herr Bergrath, Dr. Von Groddeck, Director of the Royal Bergakademie, Clausthal, The Harz, North Germany.

IMPROVED MINING MACHINERY.

It has frequently been said that wherever mines are found there you will also find Cornish miners, and it appears equally certain that whatever practical difficulties may be met with in the shape of stubborn ore or unfavourable locality, so far as obtaining the usual machinery is concerned, Cornishmen are always ready with a remedy. As a result many important improvements are frequently made which in long settled districts would never have been thought of. The names of Cornishmen are constantly appearing in various mining centres in relation to new inventions, and it seems that Mr. Joseph Richards—who will be recollected by the readers of the *Mining Journal* from his being so long favourably known in the Tavistock district, where he was for many years manager of a large number of mines, and mineral agent to Lord Fortescue—has been displaying his practical ingenuity at Battle Mountain, Nevada, where he is now engaged as superintendent for the Battle Mountain Company, which is composed chiefly of London pool capitalists, by inventing an improved concentrating mill, or an automatic buddle.

The essential features of the mill are the novel combination and arrangement of devices for sizing, separating, settling, and treating ore pulp, in order to concentrate and grade the particles of ore preparatory to subjecting them to the reducing process. The invention, therefore, resolves itself into a milling operation, the object of which is the mechanical separation of the different qualities and grades of ore, and the elimination, before final treatment, of the gangue, or worthless portion of the ore. To those who are waiting to be able to utilise low grade galena and copper ores this process will prove invaluable. The ore is first passed through a Blake stone-breaker, and from this it is still further reduced by passing through a pair of Cornish rolls with a stream of 10 gallons water. Two sizing boxes are mounted at one end of the mill structure, and into these the pulp and tailings are delivered by suitable spouts. These boxes are placed loosely inside of guides, and each one rests upon a suitable platform. A stem is arranged to project upward from each box, and on this stem is a tappet. A cam is secured upon a horizontal shaft above each box, in the proper position to strike the tappets and lift and drop the boxes, in the manner of operating stamps in a quartz mill. Inside of each box two or more inclined screens are secured, one above the other, each alternate screen being inclined in an opposite direction. The fineness of these screens is graded from the top down. An opening is made in the sides of the boxes at the foot of each screen, and a shoot leads from each opening down to an elevated tank, which is mounted on legs on the floor below. By inclining each alternate screen in the opposite direction one-half of the shoot and one-half of the opening will be on each side of the sizing-boxes. The pulp, therefore, which falls into the sizing-boxes will be secured by the upper screens, so that only the coarsest portions will be delivered into the upper shoot and pass into the outside tanks. The second screen will separate a second grade, and its shoot will direct it into the tank on the opposite side, and so on down, separating the grains according to their size, until the slimes pass off through a spout at the foot of each sizing-box, which conducts them to a series of settling tanks.

The pulp which accumulates in the elevated tanks is occasionally drawn off into a car, and conveyed to the opposite end of the mill, where it is dumped in equal proportions into two spouts, which deliver the pulp into the concentrator; this consists of three tanks. Inside of the middle tank is a plunger, which is connected to a pitman, with a crank shaft above, so that it is kept in constant motion. The outside tanks are connected with the middle tank by an opening at or near their bottoms, and a gate is arranged to regulate the size of these openings. The spouts deliver the pulp into the outside boxes, in each of which is placed a screen. A quantity of water is admitted into these tanks, so that the action of the plunger causes the pulp to be thoroughly washed and separated from any fine portion which might have found its way into the tanks. The portion of the pulp which remains above the screens is occasionally skimmed off and carried back to the spout at the foot of each sizing box, where it is mixed with the slimes and is consequently treated with them, while the portion which settles through the screens is drawn off through the doors or gates in a clean condition, ready for subsequent treatment. Two sets of these concentrators and washers are employed, one set being on each side of the mill, and each set serves to treat the pulp which is taken from one of the sizers. Usually the inventor constructs boxes with overflow spouts, which carry off the skimmings, and thus render the operation continuous.

The slimes which, as above stated, pass off through the spouts at the foot of each sizing-box, together with the settlings and washings from the concentrators, which have been added to them, are conveyed by a series of troughs to a tank, into the bottom of which a stream of water is delivered through a pipe which leads from an elevated reservoir. This upward-directed stream of water dilutes the pulp, and by its upward action carries the lighter portion of the slimes over the lower edge of the tank and through a spout on to a series of settling tanks. The first 10 settling tanks have a hole in its bottom, in which a tapering plug is secured. Each plug has a stem extending upward and passing through a cross-bar which extends across the top of the tank, so that the conical plug can be removed or lowered as desired, in order to adjust the size of the opening according to the quantity of pulp it is required to let off. The stuff which passes through these holes is received into closed tanks below, in which the particles will settle to the bottom part in a properly cleansed and concentrated condition, leaving the lighter portions on top. The heavier portions of the slimes delivered into the tank by the spouts will settle down through a hole in the bottom of the tank, and be conducted through a spout into a tank, from which it overflows into another tank, in a fit condition to be subjected to the reduction process.

This system of ore washing, concentrating, and sizing apparatus is nearly automatic in its operation, so that the ore is put in proper condition for treatment at a slight expense. This concentrating mill was erected and started to work in the latter end of June, and has been in successful operation ever since. The ores treated therein have been low-grade copper ore, from 6 per cent. upwards. This ore is usually manipulated so as to bring 5 or 6 tons into 1. The ore, after concentration, assays 30 per cent., sometimes less, and sometimes less, according to the grade of the ore worked. The ores are first crushed in a Blake crusher, and then by Cornish rolls to from ¼ in. to 1-12th in. in size, depending on kind and quality of rock; any other size for any other kind of ores may be found advantageous. After the ores are crushed the largest portion is made to undergo a jigging process, which concentrates it at once operation. The slimes are most effectually treated by a very simple operation, which separates all grit and mud, when both can be treated by buddles, &c., which are very simple in operation. The process is known as the wet concentration process.

With regard to the buddle the improvement consists in a new arrangement for automatically discharging the pulp upon the

inclined surface of the buddle, and at the same time delivering upon the inclined surface by the same automatic arrangement any number of moving uniformly directed jets or streams of water for washing the ore and carrying away the light portions. The bottom of the circular pan is inclined, or convex. In the centre of the pan is a circular raised portion, the surface of which is inclined or descending from its centre to its outer edge. A timber extends across above the centre of the pan, and is supported by uprights. A vertical shaft steps in the centre of the raised portion of the pan, while its upper end is secured in a suitable bearing in the cross timber. An upright cylinder surrounds the shaft, and is permanently secured to it, so that it will not rotate with the shaft. Outside the cylinder another cylinder of larger diameter, but which is shorter than the other cylinder, is secured, so that both cylinders will rotate with the shaft. Hollow arms extend outward horizontally from the inside cylinder. These arms pass through the outside cylinder, and extend to the centre rim of the pan, and are slightly curved in one direction. Short hollow arms project horizontally from the outside cylinder, and extend out to the outer rim of the raised portion. The outer ends of the tubular arms are closed, and a small hole is made on one side of the arms, above the outer rim of the raised portion, while a number of small holes are made along one side of the arms, above the inclosed surface of the pan, outside of the raised portion.

It will now be perceived that this combination of upright shaft and radiating arms form a compound Barker's mill, which will be rotated by the reaction of the water which escapes from the holes in the arms. In practice the pulp is delivered by a sluice trough, or other means, into the upper end of the outside cylinder, while clear water is delivered by a suitable spout into the inner cylinder. The water will then fill the arms, and be delivered in a line of small streams through the holes upon the inclined surface of the pan. The action of this escaping water will cause the entire device to rotate in a direction opposite to that in which the streams are projected. At the same time the pulp is discharged through the holes in the arms, upon the outer edge, or near it, of the raised platform, and flows down along the inclined bottom of the pan, where it is acted upon by the small jets or streams of water by which it is washed, and the lighter portion separated. This arrangement of the water jets forms what Mr. Richards calls a hydraulic brush, which is automatically caused to sweep over the surface of the pan on which the pulp is spread, and the gentle washing action separates the particles, and carries off the lighter portion down the incline, without flowing or disturbing the body of pulp. This device is extremely simple and inexpensive, as the operation is continuous and automatic, the entire operation being maintained by the hydrostatic pressure in the inside cylinder.

FENTON'S PATENT METHOD OF FITTING UP WHEELS ON AXLES.—At the Bridge Street Works, of Messrs. Joseph Fenton and Sons Sheffield, in the presence of a number of colliery managers, engineers, and other gentlemen, their patent method of fitting up wheels and axles was put through a very severe test on Friday. A pair of 11-in corve wheels fitted on axles, selected from a pile of some 30 sets by one of the gentlemen present, were taken up to the top of the works, at the least 35 ft. in height, and literally thrown down on to an iron plates, but without either breaking the wheels or in the slightest degree disturbing their patent fastenings, and this test was repeated half a dozen times with the same result. The next test was that of throwing the wheels and axles as great a distance as possible on the iron floor of the works, but this also was of no avail, and failed to make the slightest impression on either. Then several of the gentlemen present took their turn at them with a very heavy sledge-hammer, but a good 15 minutes hard labour was entailed upon them before they managed to fracture one of the wheels, and this was only at last accomplished in the weakest part of any wheel between the spokes. The next test was tried on the fractured wheel, in order still further to ascertain the quality of the steel. It was taken off the axle and placed in the smith's fire, and part rim of the flange heated to a white heat, under the superintendence of Mr. Quilter, of Barnsley, when it was found that the arms although they did not separate from the rim, and after the heated part of the wheel had been plunged into cold water, it was several times heated, and put into water till cold, when it was again attacked with a sledge-hammer by a worthy son of Vulcan, but he could only then manage to fracture it between the spokes—thus proving, beyond doubt, the specially tough quality which Messrs. Fenton and Sons claim for their steel. The gentlemen then inspected the works, which are very extensive and most complete in every respect, and capable of turning out the very largest steel castings which may be required.

TECHNICAL EDUCATION, AND THE CITY GUILDS.—The exhibition at the Mansion House of the articles sent in for competition for the prizes offered by the Worshipful Company of Turners was this year very successful one. The subjects of competition were turning in ivory, pottery, stone, and jet; and steel, brass, and gold for horological purposes. The competition in ivory included vegetable ivory. The qualities considered in awarding the prizes were: Beauty of design, symmetry of shape, utility, and general excellence of workmanship; exact copying, so that two objects produced should be counterparts in every part, or exact measures of capacity; fitness of framework or design for the purpose proposed; ability to turn, whether circular or oval; and novelty in application of turning or in design; lathe-turning was admissible, but it was to be subsidiary to the turning. Each candidate was to make his own selection from the above conditions; but the one who best fulfilled the largest number, including the most important qualities, was preferred. The work to be all hand turning produced in the lathe without special rest or tool appliances, and the carving to be the work of the exhibitor. The prizes were distributed in the Egyptian Hall by the Lord Mayor, the Lady Mayoress and a large number of ladies being also present in addition to the leading members of the company. Mr. R. L. Loveland, the master, in thanking the Lord Mayor for his courtesy to the guild, remarked that this was the seventh year that their exhibition had been held at the Mansion House. The judges in ivory were Messrs. R. Gregory, T. B. Winser, and M. Yeatman; in pottery, Messrs. J. Holzapfel, A. J. Copeland, and H. Doulton; in stone and jet, Mr. Gilbert Scott, Dr. W. Pole, Mr. W. V. Simons, and Prof. Tennant; and in steel brass, and gold (for horological purposes) Sir J. Bennett, Bart., and Messrs. J. Jones, S. Jackson, and L. Donne. Several of the judges spoke with reference to the exhibition, and the observations of Messrs. Doulton and Jones are worth recording. Mr. Doulton remarked that the art of pottery was in every respect most interesting, and he impressed upon them that the objects before them were the results of individual skill, and that they had not been drawn from moulds. It was gratifying to the judges to see the exhibition so interesting and instructive. He felt much indebted to the company for having instituted a movement of this kind. It appeared to him that the guilds of the City had, if they would rise to a sense of their responsibilities, a great future before them. He believed the hospitalities and charities of the companies were widely dispensed; but it should be borne in mind that in these days there was a need of the stimulus which flowed from exhibitions of this kind. As universities were wanted for the higher intellectual culture, so were industrial universities wanted for the development of the skill of the handicraftsman. He was glad to know that a movement to supply this necessity was being made by men of eminence. Mr. J. Jones spoke of the importance of exhibitions of skill in workmanship in promoting the prosperity of the country, by maintaining its excellence of manufacture, and denied the statement that had been made that money alone was the incentive which induced exhibitors to send in their works, but attributed the success of the exhibition in the main to the honour to be derived from acknowledgment of superiority. The prizes which were distributed last Friday were—in IVORY: First prize, bronze medal and 5*l.* to Mr. J. Wright, of Queen's-place Hoxton-street; there were three other certificates and money prizes; in POTTERY: first prize, freedom of the company and 5*l.* to Mr. E. Bryon, Princes-street, Lambeth Embankment; there were eleven other medal, certificate, and money prizes; in STONE and JET: first prize, silver medal and freedom of the company, Mr. J. Nankervis, Ruan Minor, Helston, Cornwall; second, bronze medal and 2*l.*, Mr. W. Coulman, Royal Marble Works, St. Mary Church, Torquay; third, first certificate of merit and 2*l.*, Mr. W. J. Coulman, marble mason, Barton-road, Torquay; first certificate of merit and 2*l.*, Mr. J. Eds, Market-place, Penzance; fourth, second certificate of merit and 1*l.* 10*s.*, Mr. W. Ede, Market-place, Penzance; fifth, 1*l.*, Mr. J. Boden, Prospect Cottage, Matlock, Bath; sixth, 1*l.* Mr. J. Britland, marble worker, Cromford, Derbyshire; seventh, 1*l.* Mr. J. Boden, jun., Matlock, Bath; and in STEEL, BRASS, and GOLD first prize, silver medal and freedom of the company, Mr. C Crisp Brighton-road, Stoke Newington. There were eight other prizes. The proceedings terminated with the usual complimentary votes.

INCOMBUSTIBLE SILICATE COTTON.

Reference has several times been made in the *Mining Journal* to the utilisation of slag by converting it into a uniform filamentous condition, in order to render it applicable as a substitute for felt and similar substances, more especially as a non-conductor, and Messrs. JONES, DADE, and CO., of Leadenhall-street, have now introduced it to an extent which leaves no doubt as to its practical utility. The patent incombustible and indestructible silicate cotton, for such is the name under which it is sold, has proved to be especially valuable for coating boilers, cylinders, and pipes, and has also been largely used for filtering, lining floors, ceilings, fire-proof rooms, ice safes, and such like. The utilisation of slag has formed the subject of almost as many patents as the manufacture of peat, but by far the larger number have resulted in failure, and so far as slag is concerned it still continues a waste product, and, notwithstanding its partial utilisation, the vast deposits of it still continue to increase. It is mentioned that processes for converting this refractory material into sand, and subsequently into bricks, mortar, concrete, and cement, are being employed on a practical scale both in England and on the Continent. In Belgium it is likewise used in the manufacture of glass, contracts being entered into with the proprietors of blast-furnaces for a regular supply. Some time ago a process was introduced for forcing a blast of steam or superheated air into the stream of viscous slag as it runs from the furnace, and by this means a substance is produced somewhat resembling spun glass. By this means, however, and with ordinary appliances, very little could be produced, so that no use was made of it, and it was not until two years since that the subject has been revived.

The silicate cotton brought into the market by Messrs. Jones, Dade, and Co. is a pure fibrous slag, and it is stated that the apparatus for producing it in such a high state of perfection, so thoroughly freed from all solid matter known as shot, and for giving it that extreme lightness which it now possesses, is a very expensive one, and is the result of a series of experiments which have extended over several years. It is claimed that this peculiar treatment so completely differs from the old idea that nothing but the principle remains. It imparts to the slag such a finely-divided character that some portions of it resemble in appearance the finest cotton wool, and are so light that 1 ton weight covers an area of about 1200 square feet at a thickness of 2½ in. This slag wool or silicate cotton, a name given to it on account of its silicious properties, and its resemblance to cotton, is a remarkably strong non-conductor of both heat and cold, and has, as such, been found to be a most useful, and, in fact, the best and most powerful means of arresting the spread of fire and frost. Its complete incombustibility, the resistance it offers to wet or outside temperature the, action of chemicals, &c., which makes it almost indestructible by any known ageut, its white colour and its peculiar property of harbouring a large proportion of atmospheric air, both of which properties greatly aid its non conducting qualities, render it the most efficacious article for the purposes mentioned.

For the coating of steam boilers, cylinders, steam domes, and so on, the silicate cotton would appear to be especially valuable; it is economic, durable, and very easy of application. It can be applied in the same way as felt underneath wooden lagging or sheet-iron. In the case of wooden lagging the grounds or runners are put on in the usual way. After they are fixed the silicate cotton can be stuffed or filled in under the lagging and into the open spaces as the laths are nailed on. These must, of course, be beaded, feathered, grooved, and kiln-dried to prevent their warping afterwards. The cotton must not be stamped in so as to crush it, but must simply be loosely pressed, so as to thoroughly fill the open spaces. For marine boilers the cotton is generally applied 1½ to 2 inches thick over the tops, as well as on the domes, and from 2 to 2½ inches on the backs, or out to stay ends. On land boilers the cotton is applied a little thicker. After the lagging is fixed on, iron bands must be fastened on to further prevent warping; the whole must then receive two coats of oak varnish.

Another method of applying the cotton is Stewart's patented principle, which consists of enveloping the cotton in a kind of bag, shaped and sewn like a mattress, 2 to 2½ in. thick, 1 ft. broad, and 2 to 3 ft. long, according to the surface to be covered. These mattresses are made of a peculiar kind of canvas, can be cut to suit any shapes, and in order to keep the cotton in them compactly together when placed against vertical sides, they are stitched right through with twine at intervals of about 2 in. Their application is also very simple and easy. All that has to be done is to place and sew them as closely as possible together over the surface to be coated. They can then be covered with packing or sail cloth. In order further to strengthen the mattresses, galvanised wire netting should be closely fastened over them, and iron bands passed over the whole in such a manner as to enable them to be easily taken off in case of repairs. Owing to the radiation along the meshes of any heat which might come into contact with the covering, a conflagration is rendered impossible. This mode of application is a very inexpensive one, and certainly appears preferable to any other. Already the Lords Commissioners of the Admiralty, and the Corporation of Trinity House, have adopted the invention, and it has been largely used by the leading railway companies, steamship owners, and manufacturers. For mine boilers, especially where the houses are in exposed positions, as they very frequently are, the coating would appear to be well worthy the adoption, and the saving of fuel would no doubt soon repay the outlay which its application would entail.

GOLD MINING IN THE TRANSVAAL.—Messrs. H. C. M'Donald and Co. are inviting subscriptions for 3000*l.*, in 12 sums of 250*l.* each, to acquire the right to one half share in the BLUE BANK GOLD REEF, situated two days' journey from Pretoria, the capital of the Transvaal, towards Potchefstroom. The concern is to be conducted by Mr. G. P. Moodie, of Pretoria. As it may hereafter be deemed desirable to increase the plant and machinery in order to gain larger returns, the subscribers are to agree that a further sum not exceeding 3000*l.* shall be raised upon the security of their half of the property, and shall rank equally with the 3000*l.* now invited to be subscribed; 6000*l.* is then to be considered as holding one-half of the reef. This is not to constitute a co-partnery between the subscribers, and as soon as the 6000*l.* is all subscribed a limited company is to be formed, in the direction and control of which the subscribers of the 6000*l.* shall have one-half voice and control, and the present proprietor (Mr. A. Brodrick) the other half. Meantime a full account of the working and results shall be forwarded every three months to each subscriber. As security for the *bona fides* of the undertaking, each subscriber of 250*l.* is to hold a 1-12th interest (worth about 125*l.*) in a 6000-acre farm at Lydenberg. Messrs. Johnson and Matthey report selected specimens with visible gold to yield 7 ozs. 12 dwts. of gold to the ton, and the ore in bulk from traces to 1 oz. 3 dwts. Messrs. Johnson and Sons report 1 oz. 12 grs. and 1 oz. 7 dwts. 12 grs. respectively to the ton. The seven claims in this property include 1050 feet on the lode and 200 feet wide, and the tenure is a "full government title guaranteed according to the gold law of the colony." The money is wanted in sums of not less than 250*l.*, half of which is only now required; and every shilling is to be expended purely and solely for necessary plant and appliances, under the eye of an agent to be appointed by the subscribers. There will be handed over in trust for the subscribers a free Government title to 6000 acres of fine farm land as a security for the *bond fides* of the undertaking until its genuineness has been proved. 1700*l.* has already been expended in its development, and from careful surveys by competent authorities a very large return is expected. The prospectus will be found in another column.

Meetings of Public Companies.

LAST CHANCE SILVER MINING COMPANY OF UTAH.

An extraordinary general meeting of shareholders was held at the City Terminus Hotel, Cannon-street, yesterday.

Mr. C. C. ADLEY, C.E., in the chair.

Mr. J. BUTLER WILLISON (the secretary) read the notice convening the meeting. The report made by the Chairman on the property of the company, which had been circulated amongst the shareholders, was taken as read.

The CHAIRMAN said—Gentlemen, this is the first time I have had the honour of meeting you as the Chairman of the company, and we deeply regret that your late Chairman—Mr. White—was obliged to leave us through ill health, for his valuable services and eminent abilities have been a great loss to us. When we last met you were informed that certain proposals had been made to your board by the Chairman of the Flagstaff Company, coupled with an urgent appeal that we should at once, without a moment's notice, without any enquiry, upon a mere telegram, and under an alleged peril of utter extinction if we delayed, blindly surrender your property, absolutely and entirely, to a complete stranger to us—their manager, Mr. A. G. Hunter, upon most onerous and exorbitant terms. These demands, though supported with all the weight and eloquence of the Flagstaff Chairman, were declined. You were informed that other negociations were then pending with a substantial London firm for the leasing of your mines for a term of years, and a director was selected by the shareholders then present to join the board and assist in carrying out the proposed arrangements. These arrangements fell through, and you will see in the sequel that it was most fortunate for the company that it so occurred. In the report circulated a full description is given of your valuable property, and I shall now place before you such further information as will enable you to better understand your position. At the time of his departure for America the company was represented to be in a most forlorn condition. Their property was attached, and because your board, as already explained, had declined to accede to Mr. Hunter's summary demands judgments had been entered against your company for a large sum; all your personal property had been sold off beyond redemption, and the sale of your real estate would speedily follow. One correspondent stated that it would require 10,000*l.* to clear the pressing local debts, and 5000*l.* more to start the mine. Another said he thought a sum of not less than 15,000*l.* to 20,000*l.* would be required to clear the mine. The company was pronounced ruined, their case hopeless, and all this destruction arising from the indifference of shareholders and apathy of directors; and then with sublime *naiveté* one writer generously offers to lease the lost and ruined concerns for the company for ten years, at one-half the net profits, and manage them for an additional 1500*l.* a-year, on condition that we sent him out 15,000*l.*, while his magnanimous colleague strongly recommends us to appoint his brother as our solicitor, at 1000*l.* a year. It is remarkable that in the letters just referred to nothing was specifically declared regarding the judgments and debts of the company; no particulars were given, nor was it stated on whose account the judgments and sales were being made, but it was left to be inferred that all were new and of recent creation. At the same time your board had grounds for believing that these statements were exaggerated, if not departures from facts, and that the company were far from being reduced to the desperate condition described. Moreover, from the anxious solicitude evinced for your welfare by strangers, and the eagerness displayed to get possession and control of your property, it was manifest that it must be of very considerable value. A few days after my arrival at Salt Lake City, and taking possession of your mines, it was found that upon a judgment for 1415*l.* purchased in by Mr. Hunter, all your personal property, to the value of about 1800*l.*, had been sold off by him absolutely and without redemption on Feb. 19 last, for the nominal sum of 57*l.* This had been bought in by the solitary bidder, Mr. Hunter, who has doubtless explained all this to the Flagstaff Company. A portion of this property—namely, the ore on the dumps—Mr. Hunter re-sold for about one hundred times what it cost him; another part (the pumps) was removed to the Flagstaff Mine, and are now pumping their water instead of ours, and the residue, including the engine bought in by Mr. Hunter for 25*l.*, he offered to re-sell to the company for 270*l.* The engine which was still on the mine had been wilfully crippled by removing the connecting-rod and cylinder-cover, in order purposely to prevent the company from making any use of the same. It was further ascertained that on subsequent dates the mines were sold by Mr. Hunter on the above and another judgment for about 2000*l.* These sales were subject to redemption by the company in six months—on Sept. 7 and 15 last, and have been duly protected and redeemed. Besides these there was an old claim renewed by the Flagstaff Company for 370*l.*, with interest. This, it is notorious, is an unjust claim, based on a transaction regarding some ores that occurred about four years ago. It was, moreover, adjusted at the time, and there was money due to the Last Chance by the Flagstaff at the time of settlement. A statement to that effect was made at the time, and handed over by the retiring manager to his successor in writing. These matters are well known, and hence the subject was considered of no moment by the boards of the two companies for the time being, and mutually allowed to remain quiescent. Under a change in the Flagstaff direction and to the Hunter management this long-dormant question has been re-opened, as a means to an end, and when it came before the Salt Lake Court in March last the Judge refused execution at first, owing to lapse of time, but afterwards granted an adjournment for 30 days. In the interim Mr. Dunne, acting with Mr Hunter, illegally declares himself our attorney, turns out our manager, and under cover of this false assumption of authority Mr. Hunter's private attorneys, Messrs. Rossborough and Merritt, who are also acting conjointly with the Flagstaff attorneys, are appointed to appear for us on the adjournment. Under such a pretentious defence, when the case came on again for hearing execution was allowed to issue, and the mines and furnaces were sold by the Flagstaff Company for 5000*l.* The Flagstaff Company though doubtless aware of these facts, maintain their claim. It has, therefore, been found necessary, in the protection of your interests, to file a bill against the Flagstaff Company, to obtain an injunction to set aside this judgment and sale, and the Court has granted permission to move for the same. As a further precaution and protection a counter action has been brought against the Flagstaff Company to recover from them 3600*l.* with interest, for rental of the Last Chance furnaces for three years, from Oct. 1, 1873, to Oct. 1, 1876. This will about cover their alleged claim against us. In addition to this counter claim we believe we have other claims against the Flagstaff Company for large amounts. You will readily understand how such large claims have arisen when you are informed that at that period, in 1873, the Flagstaff Company had received from our mine about 4000 tons of ore, of the value of over 50,000*l.*, the accounts for which are still unsettled. We have, therefore, substantial grounds for believing that when these accounts are investigated and fairly adjusted our claims against the Flagstaff Company will reach to something very considerable It may be added here that we have also a claim against the London firm, previously referred to, for serious damages, owing to the irregularities of their agent, Mr. Dunne, in America, but this will be best explained to you by our solicitor, if you think it desirable that the question should be gone into at this meeting. You will thus perceive that, apart from the very questionable Flagstaff claim, and any claims of Mr Davis or his agents, the local, just, and pressing liabilities stated to amount to from 10,000*l.* to 20,000*l.* did not exceed 2000*l.*, and that had it not been for an unwarrantable and unauthorised interference in your affairs the ore on the dumps would have mainly provided for these debts, and the small balance could have been easily adjusted. The company therefore, at the present moment would not have been called upon for a single penny. As matters stand, however, the Flagstaff Company's late manager in spite of professed friendship makes a large profit out of the Last Chance Company's personal effects, throws on us the additional burden of raising funds to replace machinery, tools, stores, &c., sacrificed by him, and saddles the shareholders with providing for debts of 2000*l.* at the risk of losing their property, which debts he could have nearly wiped off with the assets at hand. It remains for Mr. Hunter and the Flagstaff Company to reconcile these acts with their professions, and with the amiable proffers simultaneously conveyed in Hr. Hunter's letter to your board of the 26th February last, wherein he states—"I am more than anxious you should have every opportunity to make some money ont of your property than secure an undue advantage for myself, and I believe this is also the feeling of those for whom I act." As an illustration of the manner in which information was suppressed and mystified Mr. Hunter, in the letter I have alluded to, stated—"An application for a United States land patent conflicting with yours is now pending," thus casting a doubt on our title. The fact is, a patent had been applied for, but it in no way conflicted with your patents, for it went a long way outside it altogether. It did, however, interfere with our boarding-house and offices, which were situated on separate land, but the applicant had specially excluded these from his application, and had executed a deed to that effect. You must pardon me for having been somewhat diffuse on these points, but incorrect statements having been circulated, it is only right that you should know the exact details, in order to form your own opinions as to these transactions, and judge for yourselves. A large number of you are also shareholders in the Flagstaff Company, and there is, therefore, the greater reason why you should be made acquainted with the precise circumstances. You must also understand that the Flagstaff Company have been the aggressors in every instance to our injury, and that we have been only acting on the defensive. He now came to the arrangement with Mr. Davis, whose claim the shareholders are aware arises from an old agreement, under which we have all along been working. The total amount of this claim is 41,938*l.*, and on my return to New York papers were presented to me regarding it. I therefore saw Mr. Davis on the subject, represented to him that litigation would be costly, tedious, and uncertain, and at that

time mutually disastrous with judgments pending against us, and which must be met by fixed dates. After investigating the accounts and fully arguing the various points it was, with considerable trouble and difficulty, finally arranged that Mr. Davis should reduce his claim by 10,000*l.*—from 41,9[illegible]8*s.* to 31,938*l.*—and take judgment accordingly. It was further arranged that payment for this sum should be taken out of the mine, the profits being equally divided between the Last Chance Company and Mr. Davis until the amount was paid off, with interest at 6 per cent., that the management should be carried on conjointly, and that any working capital required should be a first absolute lien or charge on the property of the company, Mr. Davis foregoing his rights for that purpose The heavy liabilities on the mine being thus adjusted, without causing any pecuniary pressure upon the shareholders, and satisfactory arrangements having been made regarding the capital to be raised, the way is now completely cleared for considering the question of the funds required, and the best means of procuring the same. The sums will be roundly as follows. First of all, we shall require 2000*l.* to refund the sum advanced to redeem the judgments we have been so scandalously victimised with by the Flagstaff Company's late manager, and which fell due last month. It was absolutely necessary that these judgments should have been redeemed, otherwise your property would have been sacrificed and irrevocably lost. As time was pressing, it was arranged with Mr. Davis to find these amounts pending the raising the same by the shareholders. We, therefore, really must find this money, for it has been advanced on the express condition of its being refunded by the shareholders. Besides this sum, we shall require from 4000*l.* to 5000*l.* to replace tools, stores, machinery, pumps, &c., with fixings complete. This will bring the sum which we require to from 6000*l.* to 7000*l.* We propose, however, to make it up to the sum of 10,000*l.*, to cover the sums already subscribed by the shareholders to meet liabilities in London, as also to allow a margin for working capital, which would otherwise have to be arranged for locally, at exorbitant rates and interest. The point then to be considered is whether in raising this sum, the principal and interest should be paid off in one year, which can readily be done or spread over a term of (say) four or five years. By the former plan no dividends will be payable the first year, and by the latter dividends on the whole share capital can be resumed at an early date. Doubtless the latter plan will be the best, because, besides admitting of early dividends, it will afford the shareholders who assist the company in its present need the means of accuriug a liberal and safe return for the money invested. There can be no doubt about the security for the 10,000*l.* being ample and substantial. There is sufficient ore now proved, the profits on which will more than cover the amount twice over, and the working of the mine can be very easily so arranged that enough ore should always be held in reserve in the mine against the sum raised until liquidated. For my own part, I am perfectly satisfied that you have a sound and valid security for investment. Yours is not an untried mine. It is a great fact. It is a mine noted in the district for its wealth. In my estimate I have been particularly guarded. The measurements and values have been taken much below the actuals; but even with this reduction, the calculations show that the value of the ore proved amounts to over 150,000*l.*, the net profits on which, after payment of all the expenses, will be about 70,000*l.* Yet you will have seen that in my report I have, perhaps, over cautiously put down the whole value of the ore at merely the amount of 50,000*l.* That is to say, the quantity is kept within a sum that the mine actually produced at the close of the year 1873. At that time, however, the mine had been worked to a depth of only about 200 feet, whereas it is now tested to thrice that depth, and hence it is only legitimate to expect a proportionate ratio of increase in future returns. You will, doubtless, therefore, agree with me that we shall err a long way on the safe side by taking the value of the ore proved at only 50,000*l.*, whereas the chances are all in our favour that this sum will be at least doubled, if not trebled. It is my firm conviction that there is enough ore now in reserve to pay off the 10,000*l.* we propose to raise, pay off Mr. Davis, and pay dividends for two years at the rate of 15 to 20 per cent. per annum over our entire capital. There is one more point to impress upon you—the advantages to be gained by the shareholders subscribing the funds now required. It is most important that you should yourselves pride the money, so as to retain within your own possession the first absolute lien over your property. The funds are urgently needed to start work, and to speedily reap the benefits of the past three years of development. We propose that whatever sum is not take up by the shareholders within 14 days to offer to the public. It will, of course, be preferable for you to find the whole, for you will readily understand how injurious it will be to your best interests to allow others to come in and secure the first mortgage over your very valuable property. The Chairman then read the resolutions which would be submitted to the meeting, and said that they could at once commence taking ore out of the mine if the necessary funds were raised. Of course, it would be better if the whole of the 10,000*l.* were raised, but if 6000*l.* or 7000*l.* were subscribed it would be sufficient to get the company out of difficulty. In conclusion he moved—"That the report of Mr. Adley be and the same is hereby adopted, and ordered to be entered on the minutes of the company."

Mr PORTER seconded the motion, which was carried unanimously.

The CHAIRMAN then proposed "That the arrangement with Mr. Davis be and the same is hereby adopted and confirmed, and declared to be binding on the company."——Dr. SIMMS seconded the proposition.

Mr. SNELL asked if he had understood correctly that Mr. Davis had consented to the arrangement after he had a judgment for 21,000*l.*——The CHAIRMAN said that was so.

Mr. SNELL asked if the judgment had been given by the courts in Salt Lake City?——The CHAIRMAN said it was given in New York City.

Mr. SNELL questioned the right of the directors to borrow this 31,000*l.* of Mr. Davis.——The SECRETARY said the company could not get out of it. It was an acknowledged debt, and the arrangement was made provided that Mr. Davis took 10,000*l.* off his claim.

The CHAIRMAN remarked that for the past four or five years the company had gone on under the arrangement with Mr. Davis, and it was, therefore, rather late to raise a question with respect to it. He thought Mr. Davis had acted very liberally in taking off 10,000*l.* from his claim.——Dr. SIMMS said he took it that it was a debt previously acknowledged, and not money now borrowed from Mr. Davis.——The SOLICITOR: That is so.

Mr. SNELL asked if the meeting could legally pass the resolution proposed by the Chairman?——The SOLICITOR replied that the meeting had ample power to pass the resolution.——The proposition, having been formally protested against by Mr. SNELL, was put to the meeting, and carried.

Mr. PORTER proposed "That the sum of 10,000*l.* be borrowed by the company on mortgage debentures bearing interest at the rate of —*l.* per annum, and secured by a first charge on the mines and other property of the company."——After some conversation the rate of interest was fixed at 15 per cent., and it was decided that the debentures should be issued at 10 per cent. discount. With these additions the proposition was carried, with one dissentient.

The CHAIRMAN proposed "That the interest on such mortgage debentures be payable half-yearly, and the capital in five years at the rate of 20 per cent. in each year, the debentures to be drawn in half-yearly drawings, and paid as drawn."——Mr. PENNINGTON seconded the proposition, which was carried *nem dis.*

The CHAIRMAN next proposed "That the said mortgage debentures be offered in the first instance to the shareholders, and that those not taken within 14 days from the date of notice to the shareholders be issued to any other person applying for them."——Mr. STEPHENS seconded the motion, which was carried.

The CHAIRMAN then proposed "That the directors be authorised to make all necessary arrangements for raising the said sum of 10,000*l.* as nearly as may be in accordance with the above resolutions, and to execute all deeds and do all acts necessary for the purpose."——Mr. SHEPHARD seconded the motion, which was carried.

Mr. SNELL asked if the 10,000*l.* proposed to be raised by the issue of debentures would be a first charge upon the property of the company?——The CHAIRMAN replied that the debentures would be prior to everything else, including Mr. Davis's claim.

A short discussion ensued, in the course of which Mr. Shephard, Mr. Bird, and Mr. Pennington, referred to the excellent services rendered to the company by the Chairman, especially in visiting the mine and in making arrangements with Mr. Davis.

On the motion of Mr. PENNINGTON, seconded by Mr. TOWNE, a vote of thanks was passed to the Chairman.——The meeting then terminated.

CARON LEAD MINING COMPANY (LIMITED).

A numerously attended meeting was held on Tuesday, at Aberystwith, of the shareholders in this undertaking, many of whom had previously visited and examined the mine both underground and at surface. Amongst those present were—Messrs. R. Simpson, Manchester; Pemberton, Mold; Brookes, Ross; Bowman, Kenworthy; T. Gundry, W. Gundry, Launders; Davey, Bedford; J. Atwood, Gwynne, Vaughan, Kerly, &c. There were also present the following professional gentlemen, well known from their connection with mining in the Carliganshire district:—Mr. John Kitto, M.E., of Llanidloes; Capt. Frank Evans, Capt. Nicholas Bray, and Capt. John Owen.

Mr. BROOKES (the chairman) stated that the company had been most successfully formed, the whole of the shares having been applied for in a few days, and that all had been allotted, and the share list closed. The company was fully registered, with limited liability, and no shareholder could be liable for more than the amount of his shares. The purchase of the property had been satisfactorily completed, and the payment was to be entirely in shares in the company, and he considered this the best evidence of the vendors' faith in the success of the concern, as, should it not bear out what had been said of it, of course, the shares would prove unproductive. Mr. John Kitto had been appointed local manager, and expressed great confidence in the concern. He stated it was one of the best young mines he had ever seen, and the other practical gentleman who had inspected it gave a very encouraging opinion as to its future, so taking all things into account and remembering that ample working capital for every purpose had been subscribed, he thought the shareholders were to be congratulated upon their unusually promising future. Mr. Kitto, M.E., stated that the mine at the present time shows much more ore ground discovered and laid open than was visible at the Grogwinion Mine when he first undertook its management, and also that the Caron lode and the Grogwinion lodes, besides running parallel to each other, were exactly similar in their geological composition and metallic contents, except that for the shallow depth of the present workings Caron is much richer than Grogwinion was at the same stage of development. He had great faith in the future of the mine, and he would even go so far as to say he believed it would prove as productive as its neighbour Grogwinion. He was aware that that might be looked upon as a sanguine prediction, but he had considered what he was saying, and was prepared to stand by it. Capt. Frank Evans, of Oswestry, said he had that day examined the mine, and was pleased with its appearance. He found the bottom of the mine much richer than the adit, and he advised that no time should be lost in sinking deeper, when he felt confident good results would be obtained. Capt. N. Bray, of Powell United Mines, who had been underground that day, spoke in favour of a spirited development in depth, as also did Captain Owen, the resident manager of Gragwinion Mine, who had had long acquaintance with the Caron and other mines in the district, and had carefully studied their characteristics, and particularly as to the similarity that existed in the well-defined parallel lodes, nearly all of which had proved very productive; and the Caron lode appeared to possess all the necessary elements to become one of the best that had ever been worked in Cardiganshire. Several other gentlemen who had visited the mine addressed the meeting, and their testimony proved unanimously that the property was one of no ordinary merit, but one that, with liberal and energetic development, is likely to prove an important and permanent success. It may be mentioned that the mine is located a few miles south of the Lisburne and Grogwinion mines, and contains several lodes running parallel thereto, that it is well situated, being close to good roads, and only about three miles from a railway, and that a great deal of valuable development work had been done by the former owners which will be utilised by the present company.

GORSEDDA JUNCTION AND PORTMADOC RAILWAYS COMPANY.

The ordinary general meeting of shareholders was held, yesterday, at the offices of the company,

Mr. J. STEWART in the chair.

The CHAIRMAN having declared the meeting duly constituted,

The SECRETARY read the notice convening the meeting. The directors' report, which had been circulated amongst the shareholders, was taken as read.

The CHAIRMAN moved the adoption of the report, which was seconded by Mr. TAYLOR, and carried.

The CHAIRMAN said that as it was hardly worth while in the case of such a small company as theirs to hold half-yearly meetings he moved the following resolution:—"That under the powers given to the company by Section 66 of the Companies Clauses Consolidation Act, 1845, the future ordinary general meetings of the company be held annually, subject to the right of the directors at any time to convene the meetings half-yearly."——The motion was seconded by Mr. TAYLOR and carried.

On the motion of the CHAIRMAN, the retiring director, Mr. C. Barton, was re-elected. Messrs. F. Bellairs and F. Logan were then elected to fill the vacancies in the board.

The auditor, Mr. H. L Morgan, was re-elected for the ensuing year, and ten guineas per annum awarded as remuneration.

The usual vote of thanks to the Chairman terminated the proceedings.

HULTAFALL MINING COMPANY.

The First Ordinary General Meeting of Shareholders was held at the Offices of the Company, Austin Friars, yesterday,

Mr. GEO. BATTERS in the Chair.

The notice calling the meeting was read by Mr. W. J. LAVINGTON, the secretary.

A letter was read from Mr. Huddlestone, one of the directors, apologizing for being unable to attend the meeting.

The CHAIRMAN said that Mr. John Maxfield, another of the directors, was also absent, being in Sweden, where he had been attending to the interests of the company without remuneration of any kind. This was a statutory meeting, called in compliance with the Act of Parliament, more for the purpose apparently of enabling the directors to meet the shareholders than for any other purpose. The directors had no accounts to present, and the company had only been in existence four months, but he might state a few facts which would be of interest to the general body of shareholders. Before taking over the property the directors had the mine inspected, and also personally visited the same. Capt. Southey, of West Chiverton; Capt. Waters, of Roman Gravels and Tankerville; and Mr. Currey Gregory, of Glasgow, had also visited the property, and so also had many of the shareholders; amongst others, Mr. Jackman, of the Stock Exchange, who had written to say that since his visit he had increased his holding, so high an opinion had he formed of the mine. The latest news from the mine had been received from Mr. John Maxfield, whom he supposed for the present he must call their managing director, in which he stated that all the fears on the score of the mines might be set at rest, as the ore now coming out was grand, and Bankhardt was afraid they would not have room to stock it. Mr. Maxfield also wrote that the Doctor had assayed the ore at 47 per cent. of lead, 3 per cent. of zinc, and 31 ozs. of silver. Thus the lode in the bottom of the shaft was producing a larger quantity of lead than at any former period, and was, for the width of the lode, a solid mass of lead and blende. There was now at the surface about 1000 tons, or upwards, of rich lead and blende ores, waiting for the erection of the dressing machinery to render it marketable. And not only had this been done in a very short space of time, but the shaft, for the depth, had been cased, and divided from the bottom to the top in three compartments, and a proper covering, or shelter, or house, had been built over the shaft, and was now nearly completed; and various other preparatory works had been carried out to enable the company to carry on the sinking of the shaft and the raising of ore during the winter months. A good deal had been said about the winter in Sweden, and the inability to work in that season. He had not only visited the mine on two occasions himself, but Mr. Bradwell and Mr. Maxfield had also visited the mine, together with many individual shareholders, who took shares in the company after having so visited the property, and they could also bear testimony that the Vieille Montagne Company, who owned the adjacent mine, carried on their works, without let or hindrance, during both winter and summer. He need not refer to the extraordinary discovery which had been made in Vieille Montagne, where 20,000 tons of blende annually were sent away, and nearly 6000 tons of lead; but they did see there, in one of the mines recently started, masses of mineral which were calculated to weigh not less than 50,000 tons. They were so gigantic that one could scarcely comprehend them, and the dressing floors of that mine were the most perfect of any mine in Europe, and perhaps of any in the world. But to come back to the doings of their own company since this company took possession of their property. He might say, in passing, that the company had now fully taken over the property, and paid for it, and no opposition was anticipated. The Hultafall Mine comprised the enormous Marstta estate, and the Government title had also been obtained to the Maxfield Mine, and as far as care and prudence could secure free, perfect, and undisturbed away and control over property in any country, he thought it had been obtained in this mine. As soon as the company took possession, their first step was to carry out the recommendation which had been given them by Capt. Southey, of the West Chiverton, Capt. Arthur Waters, and Mr. Currey Gregory—namely, to send out, *en bloc*, dressing machinery capable of reducing 60 tons of mineral per day. Sixty tons per day from an ordinary lead mine would give but a small yield in the dressed material; but in the ores from this mine the returns would be what he might almost characterise as enormous, inasmuch as the average yield of the lode stuff would produce upwards of 50 per cent. in dressed mineral—that was in blende and lead—thus giving 30 tons of dressed mineral per day, equal to 800 or 1000 tons per month, three-fourths of which might be fairly reckoned upon as blende, and one-fourth or one-fifth as lead. In saying that he was putting the figures at a very low ratio; but taking only half that quantity, and dressing off only 30 tons per day, that ought to give them at least 400 tons of dressed mineral per month, which would be about 300 tons of blende, and 100 tons of lead. Reckoning the lead at £15 per ton, and the blende at £4 per ton—although a ready market could easily be found at a much higher price—but reckoning them at that price it would give a total of £2700, or a profit of £2000 per month, or 10*s.* per share per quarter in dividend. That might be looked upon as the *minimum* which might be expected, but the directors expected twice that amount. They ought to be able to dress 60 tons per day, and the profits on one month set aside ought to be almost double. The capabilities for dressing were excellent, and Capt. Waters told him he could see no difficulty, when the mines were properly opened up all over, of giving a return of over 200 tons per day. These were figures of great magnitude, but he saw no reason to doubt the facts; and facts they were. This mine possessed what few mines possessed—namely, the ore to go to the dressing floors in apparently inexhaustible quantities, as far as practical purpose went, in their own time. That being the case, it was only for the company to erect the most perfect dressing machinery which was known in this present age of science, and render the metal markeable as cheaply and quickly as possible. That was being done, and a large portion of the machinery would be shipped by steamer from Hull to-morrow, and the balance would be sent the following week. Four of the most improved boilers which England could produce were being sent out, for economy in fuel, and portability in transit; the steam engines were of the same improved type, and the machinery at the mine would be of the colliery type, [illegible] at the large masses of stuff they had to deal with, and the lead appliances those by Green of Aberystwith. At the Vieille Montagne Company's works, a portion of the blende was sent away in a calcined state, and a large portion uncalcined state, and so rich were the deposits that a large quantity was sent to Belgium in the stone. The directors had had their attention called to the ject of the calcination of the blende. It was known that Dr. Oxland's new was being used at Devon Consols for arsenical pyrites, at another mine for the cination of tin, and was also used in some foreign mines in the reduction and ing of copper pyrites. Dr. Oxland had been consulted, and his report received placed in the hands of the shareholders; and Dr. Oxland stated that he doubt whatever that, with some slight improvements in his calciner, he could this company's blende ores, and with one calciner return quite 20 tons throwing off the silver and working it up to a produce of over 60 per cent. of zinc, which would make the ores marketable, even at the present low price and worth between £6 and £7 per ton, at a cost of a very few shillings per ton. people might think that as this was a foreign adventure there were heavy ties to contend with from distance, transport, climate, foreign labour, and so As far as labour was concerned, they had better labour, or certainly as any mining labour in England, at a little more than half the price, inasmuch the average price paid at the mine for labour was about 2*s.* per man per and the cost of the transport from the mine to this country, including navigation, freight to Hull, and so on, would not exceed 11*s.* or 12*s.* with regard to labour, they were favourably situated; whilst as to the transport it was a very immaterial matter, as it would cost only a little more the ordinary transport of metal from the mines in Yorkshire and Durham, smelting districts in North Wales, or those scattered over our own country had now laid before the shareholders what had been done during the past months. The capital of the company was comparatively small; it was divided 12,000 shares of £5 each, making 60,000, and, with economy and good manage he saw no reason to doubt that they would be able to bring the mine into a to give profitable returns in the spring of next year, after which he hoped believed it would be plain sailing. There was one important point which he refer to—namely, the question of water for dressing purposes. The Vieille Mon Company gave some £60,000 or £70,000 for the use of a lake, whence to obtain for dressing purposes; but this company had obtained a lake, with water for ing purposes, at a total cost to the company, including 25 to 30 acres of la dressing-floors, of between £1600 or £1700, for 25 years, renewable, at the exp of the time, for another 25 years. Thus they were amply provided with an inexhaustible supply of water; they had, apparently, an inexhaustible store in the of minerals to open upon; they were sending out machinery best adapted to the poses required of it. The directors had a considerable knowledge of the tr which they were engaged, and many of the shareholders had taken shares having seen the mine, and he thought that, looking at all these facts, they consider there was an excellent prospect before the company. (Cheers.)

Mr. H. BRADWELL, of Sheffield, said there was one thing which surprised the launching of this company—namely, the apparent doubt as to the value property on the part of the public in London. There seemed to be consid doubt on the point. He went out to the mine the first week in May, specia look at the property, and what he saw of it was sufficient to convince him that was a mineral territory there surpassing anything he had ever seen in his li had seen the richest mines in England, in Wales, and in the North, but he that he had never in his life seen such a lode of mineral as this. In Dec they had the ore in combination with large quantities of spar, but in this co mine they had ore in combination with ore throughout, and but a very sm centage of the "gangue" or native refuse. He brought home samples fr mine, out of the shaft bottom, which was then about 60 feet deep; he had had samples carefully assayed, and his testimony was that the reports that had given by Capt. Waters, Capt. Southey, and Mr. Gregory were perfectly acc and not in the slightest degree exaggerated. The further sinking of the shaft vinced him that this lode ought to be a very mighty affair, and that the w the lode was increasing as they got deeper. With regard to the expenses of ing, of which he had at one time some small doubt as to the treatment when the intimate blending of the two ores, he might say that what he saw at the Montagne Company convinced him that the ore could be treated with wo success. The ore in this mine was of the same class and character, but, i thing, richer than in the Vieille Montagne. They had a magnificent sup water power, which could be utilized without the shareholders being called for any more cash. When he saw the water power, he put it as equal to 30 power; that was in May of the present year, when the ice was breaking up snow was thawing; but in summer he thought it would not be less than 150 power. The horse power of the Vieille Montagne, in water-wheels and tu was about 130. The water power of the Hultafall Company was but a sh tance from the mine, and a tramway could be laid and the ore run from the head to the dressing-floors, and then put in boats, sent up the lake, and transfe steamers and sent to Gothenburg, then on to this country at a total cost of 15*s.* per ton. From what he had seen he intended to increase his holding. Maxfield and himself had given attention to the ordering of the machinery, a gone to the best markets for everything, paying cash and giving no bills. I no doubt in his own mind that with care and economy, and skilful manage this property would be made very successful, and very profitable. If they property in Derbyshire, with good management, with plenty of money, and price for the produce, the property could be made to stand in the market a thing like half a million sterling. It was simply a question of increasing the and dressing power to multiply the returns from time to time. For his own would do his best to make the company a success.

In answer to Mr. ASTON,

The CHAIRMAN said they could finish the dressing floors with the money i

Mr. ASTON said he could fully corroborate all that had been said regardi excellent promise of the property. He saw the ore 9 ft. wide at the bottom shaft.

Mr. JOSHUA MAXFIELD said that, as vendor, he was pleased to hear all th been said regarding the property. He saw no reason why, with judicious m ment, it should not be made a great success, and, for his own part, he wo everything in his power to make it so. He had been in Sweden seven or eigh during the past summer, and on the last occasion the solicitor, Mr. Batters was with him. They went thoroughly into all matters affecting the compa whatever they found wanting to be cleared up they did, and placed the thi thoroughly sound basis. He saw the thing going before he returned, thin best not to leave till the thing was in thorough working order. On his re sent out his brother, who had now been at the mine several weeks, and who in the most encouraging terms of the prospects of the company. (Cheers.)

In answer to Mr. ASTON,

The CHAIRMAN said: We have £10,000 to provide machinery and start dr floors, and get into returns. We know we can sell the lead and blende, and work to a large profit. I believe we have a property of greater value than th Mine.

The meeting then broke up.

PROVIDENCIA AND NEW ROSARIO SILVER MINING COMPANY. At the second ordinary meeting of shareholders, held at the o yesterday, a favourable report on the position and prospects of company's property was presented and adopted. The Chair referred with much satisfaction to the fact that the Providencia Mine was opening out very well indeed, and that the characte the ground was such as to justify the manager's anticipations very good results would be obtained from the development of property. So far, the returns had greatly exceeded in value amount at which they had been assayed. The details of this ing will appear in next week's *Mining Journal*.

[For remainder of Meetings see to-day's Supplement.]

THE WEEK.

SATURDAY, OCT. 13.—Illinois Central shares reached 87⅜ to-day—a fortn of 81½. No one ought to touch them now with a view to holding. When ing of them at one time in the month of July last they were only 85⅞. It not be lost sight of that while only paying 4 per cent. they are closely appro the price they were at when 8 per cent. was paid. By many dividends at t are expected to be resumed shortly. Railway operators are too much given ticipating coming events. Just now it is the thing to buy South Eastern De because forsooth there is next year an exhibition at Paris, which it is ex will greatly benefit this line. Tankerville shares were dealt in at ¾. The pling is only to be 100 tons; perhaps the most practicable in the present co of the mine.

MONDAY.—The coupon of the Egyptian Preferences loan was duly paid t and the bonds closed 55⅛ to 55⅜ ex div. The annual report of the National Company states that the income for the year amounted to 7188*l.*, and the ex to 16,548*l.*, leaving a deficiency of 9360*l.* From the forfeited share accou item not likely to appear again), however, a sum of 8322*l.* was received, lea net deficiency of 1037*l.* The directors of late have received no remuneratio they promise that they will not draw any fees until they are able to pay dend to the shareholders. A large proportion of the safes are still unlet, common with the rest of Queen Victoria street, tenants for offices remain as as ever. In mining shares there was some demand for Parys Mountain. had to give 11*s.*, or an improvement of 2*s.* Wheal Grenville rose to 3*l.* 20*s.* to 22*s.* 6*d.*; Derwent, 2¾ to 2¾; Llanrwst, 2¼ to 3; Kapanga, 1 to 1

TUESDAY.—Dover, A, to-day moved up to 116. Of late the next thing h a gradual decline to 113. There was some buying of Chatham, Caledonian British. Canadian stocks now appear to be quite neglected, hours passing w a bargain being done in either Great Western or Grand Trunk. No doubt t in money has deterred buying. There was some enquiry to-day for thi mining shares—those where calls are never absent—and opportunities were ever, prefer to increase them. An important rise was reported in East Ca Wheal Grenville was dealt in at over 3, and business was transacted in G Marke Valley, Wheal Agar, Wheal Crebor, and Wheal Kitty continue neg Canada Land Company's shares, recently quoted at 100, were dealt in to-day but this represents a wonderful price, as there is now only 1*l.* paid. Aquarium shares were offered, and dealt in below 3*l.*

WEDNESDAY.—Russian of 1873 rose to 75¼ on the strength of the importa tory gained in Asia. Hungarian bonds were also favourably affected. B this the markets were flat. Railways were offered, through a fear that the rate might be raised again to-morrow. The shrinking was principally in A, and in Caledonian. Grand Trunk securities were pressed for sale, and a in the upward tendency of tin shares was apparent. Carn Brea and one o others were offered at a reduction. Parys Mountain was dealt in at 11*s.* Richmond at 6*l.*

THURSDAY.—The directors of the Bank of England made no alteration in rate. The home railway market accordingly rallied, and left off firm. and Sheffield being especially strong. Russian and Egyptian bonds closed National Safe shares were offered and fell to 2*l.*, Royal Aquarium was dealt 2⅞. Mining shares were rather dull. Allamillos was dealt in at 1¾, London California at ⅝, Kapunga at 1¼, and Sierra Buttes at 1⅝.

FRIDAY (*Opening*).—A firm tendency is shown by the markets, though be a rise in Dover, A, there is not much fresh feature. Egyptian Preferenc Unified are higher. Parys Mountain, 12*s.* to 14*s.*; Wheal Uny, 1 to 1⅛; Peevor, 5 to 5¼; Wheal Jane, 1⅜ to 1⅝; Wheal Grenville, 3 to 3⅛; Kitty, 1¼ to 2; Tankerville, 5 to 5¼; Roman Gravels, 8¾ to 8⅝; Glasgow

North Laxey, 12s. to 14s.; East Caradon, ¾ to 1; East Lovell, 1 to 1⅛; South Roman Gravels, ⅜ to ½.—*Two o'clock.*—Prices have improved rather considerably in some instances. Dover, A, has risen 1*l.*, and Midland and Great Western Erie shares have sprung into demand at a rise of $⅝, to $14. Richmond are in demand, quoted 5⅞ to 6⅛. Flagstaff has been dealt in at 2 1-16th, Wheal Frances at 2½, Quebrada at 2, Kapanga at 1⅝, and Rio Tinto at 3⅜. Yarmouth Aquarium meeting, held yesterday at Yarmouth, a dividend of per cent. was declared. Grand Trunk securities are all lower.—*Four o'clock.*—Markets close firm. Russian, 77; Egyptian Preference, 56; Great Western, Leadhills, 5 to 5¼; Roman Gravels, 8 to 8⅛; Chapel House Colliery, 2⅛; Great Western, 1 to 1¼; Cardiff, 1 to 1⅛; Newport Abercarn, 4 to 4½; Gawber, 2½ to 3; Port Phillip, 10s. to 12s. 6d.; Llanrwst, 2⅜ to 2⅞.

Mincing-lane, Oct. 12. FERDINAND R. KIRK.

WATSON BROTHERS' MINING CIRCULAR.

Many years ago the weekly information which had previously been published for a great number of years in WATSON BROTHERS' Mining Circular was transferred to the columns of the *Mining Journal*, with the following announcement; which is now reproduced in consequence of the numerous letters and enquiries handed to them of late in reply to one which appeared in the Journal on the Clementina Mine.

The great extension of mining business, the difficulty so often complained of by country shareholders in getting accurate and disinterested information as to the state of Cornish and Foreign Mines, and of the financial and real position of mining companies generally, have induced Messrs. WATSON BROTHERS to make the Circular now published in the *Mining Journal* more extensively known, and

That they issue daily to clients and others who apply for it a Price List (as supplied to most of the London and country papers), giving the closing prices of shares up to Four o'clock.

They also buy and sell shares for immediate cash or for the usual fortnightly settlement in all Mines dealt in on the Mining and Stock Exchanges, at the close prices of the day, free of all charges for commission. They deal also, on the same terms, in the Public Funds, Railways, Telegraphs, and all other Securities dealt in upon the Stock Exchange.

Having agents in all the mining districts, they are constantly getting mines inspected for their own guidance, and will also obtain special reports of any particular mine for their clients, for the inspecting agent's fee of £2 2s.

In the year 1843, when mining was almost unknown to the general public, attention was first called to its advantages, when properly conducted, in the "Compendium of British Mining," commenced in 1837, and published in 1843, by J. Y. WATSON, F.G.S., author of "Gleanings among Mines and Miners," "Records of Ancient Mining," "Cornish Notes" (first series, 1862), "Cornish Notes" (second series, 1863), "The Progress of Mining," with Statistics of the Mining Interest, annually for 21 years, &c., &c. In the Compendium, published in 1843, Mr. WATSON was the first to recommend the system of a "division of risks in several mines, ensuring the success in the aggregate," and Messrs. WATSON BROTHERS have always a selected list on hand. Perhaps at no former period in the annals of mining has there been more peculiar need of honest and unbiassed advice in regard to mines and sharedealing than there is at present; and from the lengthened experience of Messrs. WATSON BROTHERS they are enabled to offer, thus publicly, their best services and advice to all connected with mines and mining.

Messrs. WATSON BROTHERS are daily asked their opinion of particular mines, as well as to *recommend* mines to invest or speculate in, and they give their advice and recommend mines to the best of their judgment and ability, based on the best practical advice they can obtain from the mining districts, but they will not be held responsible, nor subject to blame, if results do not equal the expectations they may have held out in a property so fluctuating as mining.

GLENROY.—The late hour at which the meeting on Friday last broke up rendered a full report of the speeches impossible; but the Chairman is made to utter one or two absurdities which he desires to correct. "The Chairman," according to the report, said "they knew that the *principles* of the operations," &c. Now, what he really said was this, "They all knew that the principal operations at the mine had been to test a theory of Capt. Rowe's, that the lode had been thrown up at the 25 level, and the main part had gone off from the shaft; that if this theory were correct the lode would be standing whole from the 25 to the 60, and a few cross-cuts might (quoting Capt. Rowe's original report) in a few months open out a mine worth 100,000*l.*" He said, that after this Capt. Rowe had assured them the lode had been cut into in three places, worth 80*l.* per fathom, and although about 800*l.* worth of ore had been raised from them, the theory had not proved so successful as expected, and he, the Chairman, believed (as he had been for months urging upon the agent) that the great success of the mine would be *in depth* like its neighbour, Great Laxey. And to show the importance of keeping shafts sinking, he instanced a case (well known to the readers of the *Mining Journal* of 20 years ago) of a lead mine in Devonshire which had been very rich shallow, and suddenly became so poor that the shareholders determined to wind up the company. Then there arose in the *Mining Journal*, "Sink your shaft," and the "cry" was adopted by the manager, and in sinking the shaft a rich mine was opened out that paid dividends for several years. When the dividend was paid, he said, there was a dinner at the London Tavern, to which he had been invited to attend, and the chief toast of the evening, one that was held out as an encouragement to all miners was—"Sink your shaft." This he also strongly recommended to the shareholders in Glenroy. The shaft was already down 74 fms., with a lode in it 6 ft. wide, and a stroke of the pick might any day make a great mine of Glenroy. It was also shown at the meeting that Capt. Rowe when offered a large premium for the shares had refused to sell, and was now the largest shareholder, and looked for his reward in the success of the mine.

"A South Condurrow Shareholder" has misunderstood the drift of our remarks. We know quite well that such an arrangement as we advocated some years ago could not be carried out now; nor did we for a moment propose such a thing. We referred to the matter to show how beneficial a proposition for which we were abused at the time would have been had it been adopted.

COUNTRY BAY BARYTES.—The secretary could answer the question. We understand, however, that a circular will be sent out in a few days, and we may be able to refer to it next week.

SOUTH ROMAN GRAVELS.—Both ends in the 45 appear by the reports to be coming into ore, and situate as the mine is, between Roman Gravels and Tankerville, a course of ore in either would cause as great a rise as there has been in Parys Mountain. Shares are now at a considerable discount.

SATURDAY, OCT. 13.—The chief demand to-day has been in Parys Mountain at a small advance. Carn Brea, 37 to 39; Dolcoath, 35 to 37; East Van, 3 to 3½; Glenroy Lead, 15s. to 20s.; Great Laxey, 20 to 21; Ladywell, 20s. to 25s.; Leadhills, 5 to 5¼; North Laxey, 12s. to 14s.; Parys Mountain, 10s. to 12s. 6d.; Penstruthal, 4s. to 6s.; Roman Gravels, 8¼ to 8¾; Rookhope Lead, 20s. to 25s.; South Condurrow, 8 to 8½; Tankerville, 5 to 5¼; Tincroft, 15 to 16; Van, 30 to 32; West Chiverton, 14 to 16; West Tolgus, 75 to 77½; Agar, 3¼ to 3¾; Grenville, 2¾ to 3.

MONDAY, OCT. 15.—Parys Mountain again in demand, and close very firm, at 12s. to 13s. Grenvilles also firm, at 3 to 3½. Other quotations the same as on Saturday.

TUESDAY, OCT. 16.—With the exception of a further rise in Parys Mountain there is very little alteration in prices generally. Carn Brea, 37 to 39; Dolcoath, 35 to 37; East Van, 3 to 3½; Glenroy Lead, 15s. to 20s.; Great Laxey, 20 to 21; Ladywell, 20s. to 25s.; Leadhills, 5 to 5½; North Laxey, 12s. to 14s.; Parys Mountain, 12s. 6d. to 15s.; Penstruthal, 4s. to 6s.; Roman Gravels, 8¼ to 8½; Rookhope Lead, 20s. to 25s.; South Condurrow, 8 to 8½; Tankerville, 5 to 5½; Tincroft, 15 to 16; Van, 30 to 32; West Chiverton, 14 to 16; West Tolgus, 75 to 77; Agar, 3¾ to 4; Crebor, 1½ to 2; Grenville, 3 to 3½.

WEDNESDAY, OCT. 17.—The demand for Parys Mountain continues, and shares close very firm, at 13s. to 16s. Market for tin and lead shares steady, at yesterday's prices.

THURSDAY, OCT. 18.—Market not quite so active. Quotations for the day are as follows:—Carn Brea, 37 to 39; Dolcoath 35 to 37; East Van, 3 to 3½; Glenroy Lead, 15s. to 20s.; Great Laxey, 20 to 21; Leadhills, 5 to 5¼; Ladywell, 20s. to 25s.; North Laxey, 12s. to 14s.; Parys Mountain, ⅝ to ¾; Penstruthal, 4s. to 6s.; Roman Gravels, 8⅛ to 8⅝; Rookhope (Lead), 20s. to 25s.; South Condurrow, 8 to 8½; Tankerville, 5 to 5¼; Tincroft, 15 to 16; Van, 30 to 32; West Chiverton, 14 to 16; West Tolgus, 75 to 77; Crebor, 1½ to 2; Grenville, 3 to 3¼; Eberhardt, ¼ to ⅜; Flagstaff, 2 to 2¼; Frontino and Bolivia, 3 to 3¼; Javali, 6s. to 8s.; Quebrada, 2 to 2¼; Richmond, 5¾ to 6¼.

FRIDAY, OCT. 19.—Market rather quiet, and prices generally in favour of buyers. Carn Brea, 36 to 38; Dolcoath, 35 to 37; East Van, 3 to 3½; Glenroy Lead, 15s. to 20s.; Great Laxey, 20 to 21; Leadhills, 4⅞ to 5⅛; Ladywell, 17s. 6d. to 22s. 6d.; North Laxey, 12s. to 14s.; Parys Mountain, 12s. 6d. to 15s.; Penstruthal, 4s. 6d. to 6s.; Roman Gravels, 8 to 8½; Rookhope Lead, 20s. to 22s. 6d.; South Condurrow, 8 to 8½; Tankerville, 5⅛ to 5⅜; Tincroft, 14½ to 15½; Van, 30 to 32; West Chiverton, 14 to 16; West Tolgus, 75 to 77½; Grenville, 3 to 3½; Eberhardt, ¼ to ⅜; Richmond, 5¾ to 6¼; Frontino, 2⅞ to 3⅛; Flagstaff, 2 to 2¼; Javali, 6s. to 8s.

Mr. Thomas Halliday, who for 15 years has acted as agent to the Lancashire miners, and founded the Miners' Amalgamated Association, has resigned his office, having been appointed president of the South Wales Miners' Association.

Registration of New Companies.

The following joint-stock companies have been duly registered:—

THE NEWHILL AND MILTON MAIN COAL COMPANY (Limited).—Capital 30,000*l.*, in 10*l.* shares. To purchase from Messrs. Beaumont, Brown, and Co., of Wath-upon-Dearne, the interest in their colliery at Wath-upon-Dearne, together with other land and property, machinery, stock-in-trade, &c., for the sum of 14,500*l.* The subscribers (who take one share each) are—James Beaumont, Ouatbridge, York, colliery proprietor; G. Turner, Hollies, Tittsmore, Sheffield, colliery proprietor; Charles Adams, Wath-upon-Dearne, corn miller; J. Bamforth, Wath-upon-Dearne, fellmonger; George Willis, Wath upon Dearne, colliery manager; E. Beecher, Chapeltown, Sheffield, mining engineer; Luke Evans, Elsicar, York, colliery agent; James Parker, Swinton, York, miller. The directors are—Messrs. C. Adams, J. Bamforth, E. Beacher, James Beaumont, Luke Evans, James Parker, H. R. Potter, George Turner, and George Wills, the qualification being the holding of 25 shares.

CARR'S COAL COMPANY (Limited).—Capital 50,000*l.*, in 100*l.* shares. To carry on the business of colliery proprietors and coal miners conducted by the firm known as Carr's Coal Company, and to take over the assets and liabilities of that undertaking. The subscribers are—Joseph Davies, Warrington, acountant, 100; H. R. D'a Willis, Halsmead Park, Prescot, esquire, 100; C. H. Cartwright, Warrington, glass manufacturer; H Jones, Priory-lane, Lee-road, 50; E. Fidler, Montpellier-terrace, Liverpool, colliery proprietor, 50; T. J. Cartwright, Warringtons, glass manufacturer, 1; J. E. Davies, Warrington. The directors are—Messrs. J. Davies, H. R. D'a Willis, C. H. Cartwright, E. Fidler, and H. Jones, the qualification being 10 shares.

LARNE IRON MINES (Limited).—Capital 7000*l.*, in 1*l.* shares. To purchase and work certain mines of iron ore near Larne, Ireland. The subscribers (who take one share each) are—W. Mordaunt, Threadneedle street, stockbroker; John Rassell, 21, Castle-street, Falcon-square, importer; A. C. Brooks, 39, Aldermanbury, manufacturer; J. Kuhn, 21, Castle street and Falcon square, merchant; C. Fowler, Old Kent-road, warehouseman; F. G. Jovill, 17, New-road, E., commission agent; G. Bellamy, 45, Mildmay Park.

VICTOR LEAD MINING COMPANY (Limited).—Capital 18,000*l.*, in 1*l.* shares. To carry into effect an agreement made between Timothy Hughes, of the one part, and John Walker, on behalf of the company, for the acquisition of the lease, property, and effects of the West Bryn Celyn Lead Mining Company (Limited), at Cilcen, Flint. The subscribers are—Timothy Hughes, 59, Seel-street, Liverpool, mine agent, 100; E. Cotton, 19, South John street, Liverpool, solicitor, 10; W. Hughes, Hope street, Liverpool, mining agent, 100; Richard Clare, 28, Windsor-road, Stoney Croft, near Liverpool, book-keeper, 100; T. C. Clare, 24, Windsor-road, sharebroker, 100; W. Norton, Pelham Grove, Liverpool, builder, 100; E. J. Ward, 12, St. Anne-street, Liverpool, musical instrument manufacturer, 20. The price to be paid for the property is 4120*l.*, of which 120*l.* is payable in cash, the balance being taken in shares. The company is registered without articles.

SEMPRESS MINING COMPANY (Limited).—Capital 5000*l.*, in 5*l.* shares. To acquire mineral property at Pen-y-Ball Mountain, parish of Holywell, Flint, especially the Coetia Ball Mine. The subscribers (who take one share each) are—W. Birch, 2, Mount Pleasant-square, Salford, engineer; E. Sutton Done, Irwell House, Lower Broughton, manager; J. S. Catlow, 48, Warwick street, Hulme, commission merchant; L. H. Phillips, 96, Deansgate, Manchester, barrister; N. Ramsden, Harwood Vale, Harwood, bleacher; D. R. Jones, Chorlton-on-Medlock, accountant; Robert Stott, 37, Duke-street, Lower Broughton, cotton merchant. The office of this company will be at 29, Byron street, Manchester.

LONDON, BRIGHTON, AND SOUTH COAST MEAT SUPPLY ASSOCIATION (Limited).—Capital 50,000*l.*, in 1*l.* shares. To carry on business as butchers, poulterers, &c. The subscribers (who take one share each) are—A. J. Build, 22, Lancroft-terrace, East Dulwich; John Jones, Llanstithen, Carmarthen; Robert Collier, High-street, Uxbridge; H. Chalon, 25, Bucklesbury; W. F. Gosling, 16, George-street, Mansion House; E. H. Wilson, Gracechurch Buildings; H. J. Hall, 6, Great St. Helens.

HULL UNION BUILDING COMPANY (Limited).—Capital 2500*l.*, in 50*l.* shares. To acquire land for building purposes at Ringston-upon-Hull. The subscribers (all of Hull) are—J. Chapman, T. Suddaby, J. Spafford, H. Serers, T. W. Martin, J. Booth, J. Wright, W. Dolby, G. Thirsk.

DERBY TRAMWAYS COMPANY (Limited).—Capital 50,000, in 10*l.* shares. To construct and work tramways at Derby. The subscribers (who take 10 shares each) are—Wilford Brett, Esher; F. S. Heseltine, 40, Connaught street,; W. Barfoot, Leicester, chaiman of the Leicester Tramways; W. Mously, Clifton, Bristol; Clement Stretton, Leicester; W. T. Bourne, Worcester; T. W. Mackay, 1, Leadenhall-street, chairman of the Dublin Tramways.

STANDARD CREDIT COMPANY (Limited).—Capital 20,000*l.*, in 5*l.* shares. This is a financial company. The subscribers are—G. Davis, 63, Coleman-street; G. Chandler, 15, Coleman street; J. Taff, 12, Sise-lane; N. Morgan, 63, Coleman-street, solicitor, 20; H. J. Harman, Queen Victoria-street, 20; E. P. Ferguson, 12, Sise lane, 3; H. B. Worrell, 65, Coleman street, 1.

PALMERSTON LAND AND PROPERTY COMPANY (Limited).—Capital 50,000*l.*, in 5*l.* shares. This is a Liverpool land company. The subscribers (who take one share each) are—D. Jones, Duke-street, Southport; John Parry, Old Hall-street, Liverpool; R. Roberts, South street, Liverpool; John Stevenson, Cable street, Liverpool; J. Dixon, New Brighton; J. Elliott, 3, Lord-street, Liverpool; T. Chetsworth, 3, Lord street, Liverpool.

ECHOES FROM THE MINING MARKET.

There has been quite an active market during the past week, and such is the elastic condition of prices that any improvement in a mine is quickly responded to by an increase in market value. Tin shares have remained remarkably firm, and smelters we hear continue to give fully 2*l.* per ton above their official quotations for ores. The London market for the metal is steady. To show the effect of the late advances in the standard a comparison of the present prices of 10 Cornish mines with those ruling a month since exhibits an increase in market value of 187,000*l.* The mines we allude to are Carn Brea, Cook's Kitchen, Dolcoath, East Pool, South Crofty, Tincroft, West Basset, West Frances, Wheal Agar, and Wheal Peevor.

Copper mines have been well represented on the market. In Parys Mountain a a very large business has been done. On Monday the price opened 9s. to 11s., but on the announcement that the Morfa-Du subscription list had been filled, and had, therefore, closed, the price steadily advanced to 12s. 6d., 15s., at which it leaves off. The lode in the cross-cut is looking well, and from the good rocks of copper ore found in the present working it is hoped that the Mona lode may not be far off. It will take at least six months, and probably longer, to extend the cross-cut under the great open cast, but when this is done there seems every prospect of a very productive mine being opened up.

In East Caradon shares a rise has also taken place. Early in the week the shares could have been bought for 10s., but upon it becoming known that an improvement had taken place in the mine the quotation rose to 20s., buyers, leaving off 18s. to 20s. We are informed that a leader of rich copper ore has been cut underlying towards the caunter lode.

A meeting of the Wheal Crebor adventurers will be held on the 23rd inst., when a call, we understand, will be made. The notices sent out make the necessary provision for this event, and as Crebor for many months past has managed to do without calls—thanks, in a great measure, to the sale for the benefit of the company of forfeited shares—this market has now almost disappeared. The nominal quotation is ¾ to 1¼.

A notice has been issued of the sale by public auction of 558 South Frances shares. Notwithstanding this, the market price continues firm at 2 to 2⅛, principally from the expectation that a good price will be realised for the 558. South Frances of late has been what we may call an unlucky mine. Twelve months ago, just as the great flat lode had been cut—or rather found, for it was hardly touched—an accident to the adit flooded the mine, and in consequence all the underground work was stopped. The shares fell to a few shillings each, but now there are signs of better times. During the past four months nearly 100 tons of tin have been sold, and as tin looks so much better calls may before long become things of the past.

In lead shares the chief demand has been for Rookhope at 20s. to 22s. Great Laxey also keep remarkably firm, and at 20¼ to 21 ex div. are worth the same as they were cum div. This is due to the firm manner in which the shares are held, and the steady return yielded by the company. There is no other change in lead shares to notice.

In foreign mine shares New Zealand Kapanga have risen to 1¼ buyers. Richmond and Exchequer have slightly advanced. On the other hand, Flagstaff and New Quebrada have fractionally fallen. JAMES H. CROFTS.

Mr. HENRY SEWELL, M.E., who has been in Chile for the past two years, has returned to this coast *via* London, to take charge of the interests of certain English mining companies here. Mr. Sewell, who was formerly an occasional correspondent of the Press, has been an advocate of American mining interests in England, and will be remembered as having written a pamphlet on the Emma Mine and its management. He advocated in England the purchase of the Flagstaff Mine at $60,000, which was afterwards bought at $1,500,000; the Yosemite Mine, at Utah, for $75,000, which afterwards mined out $300,000; and the "No You Don't" or Telegraph Mine for $20,000, which has produced some $500,000. Probably had the mines been bought at the bedrock prices stated, the English would have realised more than they have. Mr. Sewell's familiarity with matters on this coast will be of advantage to him and to his companies, and it is to be hoped he will be able to bring them out of financial difficulty. Mr. Sewell has brought with him from Chile a very fine and interesting collection of silver ores from the limestone formations in Chile, Peru, and Bolivia, such as have never been seen here before. They are now on exhibition at Riotte and Fernbach's, Montgomery-street, where they will be for a short time. He has also brought some samples from the gold diggings at Catapilco. Mr. Sewell promises us some notes on railroad and mining matters in Chile.—*Mining and Scientific Press*, San Francisco, Sept. 29.

CHEMICALS, MINERALS, AND METALS.—Messrs. J. Berger Spence and Co. (Oct. 13).—Acetate of Lime, 9*l.* 10s. per ton for 70 p. ct.—Alumina: Alum, 6*l.* 10s. for loose lump; ground, 7*l.* 10s.—Aluminous cake, 4*l.* 5s.—Ammonia: Sulphate, grey, 20*l.* 15s.; best London white, 21*l.*; muriate—white, 27*l.*; sal ammoniac, firsts, 45s.; seconds, 44s.—Acid: Tartaric, English, ground or crystal, 1s. 6d.; foreign, 1s. 5½d., crystals; oxalic, 5d.; sulphuric, 3*l.* 10s. to 3*l.* 15s.; picric acid, 1s. 6½d. per lb.—Arsenic: Best white powdered Cornish, 8*l.* 5s.—Bleaching Powder: At 5*l.* to 5*l.* 5s; for whole 1877, 5*l.* 15s.—Litharge: Best flake, 22*l.* 10s.—Metallic Salts: Iron salts, green and rusty copperas, 55s.; in casks or barrels, 60s.—Copper Salts: Sulphate of copper, 21*l.* 10s.—Magnesia: Epsom salts, 3*l.* 5s.—Nitrate Soda: 14s. 9d. to 15s.—Potash: Muriates, 80 per cent., at 6*l.* 7s. 6d. f.o.b.; Prussiate, yellow, 10½d.; chlorate, 8½d.; bichrome, 4d.—Soda: Cream caustic, 60 per cent., 11*l.* 12s. 6d.; white, 60 per cent., 12*l.*; soda ash, 1⅝d.; soda crystals, 4*l.* 5s.; bi-carbonate, 10*l.*; salt cake, 2*l.* 15s.; Glauber salts, 2*l.* 15s.—Sugar of Lead: Brown, 26*l.*; grey, 30*l.* 10s.; white, 36*l.* 10s.—Brimstone: Best thirds, 8*l.* 7s. 6d. to 8*l.* 10s.—China-clay: 15s. f.o.b. Cornwall; "Rosemellyn," 24s.; "BM," 34s.—Gypsine: Crude, 2*l.* 5s. to [illegible]*l.*; calcined 4*l.* 10s. to 6*l.*—Iron Ore: Hematite, 15s. to 28s. 6d.; Algerian, 58 per cent., 14s. f.o.b.—Manganese Ores, 85s. for 70 per cent.—Pyrites: Spanish cupreous, 6¼d.; non-cupreous, 5¾d.—Phosphate of Alumina, 3*l.* to 3*l.* 10s. per ton.—Phosphates: High strength, 80 to 85 per cent., 1s. 4d. to 1s. 5d. per unit; Estramadura, 1s. 3d.; ordinary, 60 per cent., 1s.; precipitated phosphate of lime, 70 per cent., 5*l.* 15s.—Iron: Middlesborough Pig-iron, No. 1, 45s.; No. 3, 41s.; No. 4 (foundry), 40s.; No. 4 (forge), 39s. 6d. net.—Hematite, No. 1, 67s. 6d.; No. 2, 67s. 6d.; No. 3, 62s. 6d.; No. 4, 62s. 6d.; No. 5 (mott. and white), 61s.—Bessemer, No. 1, 67s. 6d.; No. 2, 67s. 6d.; No. 3, 62s. 6d., less 2½ per cent.—Scotch warrants, 53s. 9d.; Scotch, g.m.b., No. 1, 54s.; No. 3, 50s. 6d. net.—Copper: Chili bars, 66*l.*; B.S. ingot, 76*l.* 10s.; tough cake, 74*l.* 10s.—Lead: Best English soft pig, 20*l.* 5s.; German soft pig, 20*l.* c.i.f., Liverpool or London—Spelter: Silesian, 19*l.* 10s.; English, 19*l.* 7s. 6d. on rails, makers' works.—Tin: Straits, 64*l.*; Australian, 65*l.* 10s.; British, 71*l.*—Tin Plates: Best charcoal, 26s.; charcoal, 25s.; best coke, 23s.; coke, 22s.—Tubes and Fittings: Discounts on application.

A NEW USE FOR TIN.—Mr. Rule has recently been in London, and he put himself in communication with the Chinese Ambassador for the purpose of suggesting to him the advantage there would be if tea was sent from China in tin boxes, instead of the present wooden boxes, lined inside with lead foil. Tin boxes would be cheaper, and the strength and flavour of the tea would be better preserved, which is a very important matter. The suggestion has been well received, and as the wood with which the present boxes are made is becoming exhausted in China, it is believed that ere long we shall see tin boxes used. Should this be so, it will help largely to the consumption of tin.—*West Briton.*

LEAD ORES.

Date.	Mines.	Tons.	Price per ton.	Purchasers.
Oct. 11	Kingston Consols	8	£15 1 6	Nevill, Druce, and Co.
—	ditto	5	10 1 6	ditto
12	New Bronfloyd	25	11 2 6	Panther Lead Company.
18	Foxdale	7[illegible]	14 0 0	Quirk, Barton, and Co.
—	Van	50	12 13 6	Adam Eyton
—	ditto	100	13 3 6	ditto
—	ditto	100	12 12 6	Panther Lead Company.
—	ditto	50	12 15 6	Sheldon, Bush, and Co.
—	ditto	50	12 14 6	ditto
—	ditto	50	13 7 6	Weston, Son, and Co.
—	ditto	50	13 3 6	ditto
—	ditto	50	13 0 6	ditto
—	Tankerville	100	12 10 0	George Burr.

BLENDE.

Date.	Mines.	Tons.	Price per ton.	Purchasers.
Oct. 4	Cwmbyr	20	£4 10 6	Swansea Vale Spelter Co.
11	Kingston Consols	30	4 13 0	Vivian and Sons.
—	ditto	3	2 14 0	ditto
15	Cwm Elan	18	3 11 6	Swansea Vale Spelter Co.
18	Van	75	2 15 6	Villiers Spelter Co.
—	ditto	75	2 14 0	Bagillt Smelting Co.

PERUVIAN TIN ORE SOLD IN LIVERPOOL.

Date.	Tons.	Price per ton.	Purchasers.
Oct. 17	4¼	£44 5 0	Williams, Harvey, and Co.
	1½	41 2 6	ditto
	6	45 2 6	ditto

COPPER ORES.

Sampled Oct. 3, and sold at the Royal Hotel, Truro, Oct. 18.

Mines.	Tons.	Price.	Mines.	Tons.	Price.
Devon Great Consols	1[illegible]6	£1 5 6	Marke Valley	30	£5 2 6
ditto	101	1 14 6	ditto	28	1 8 0
ditto	92	1 5 0	Wheal Crebor	108	2 14 6
ditto	86	1 13 6	ditto	70	2 18 6
ditto	80	1 12 0	ditto	66	2 0 6
ditto	75	4 16 0	ditto	41	0 14 0
ditto	74	1 10 6	Glasgow Caradon	75	4 7 0
ditto	73	1 9 6	ditto	72	3 13 0
ditto	65	4 1 0	ditto	64	3 15 0
ditto	64	1 5 6	ditto	24	3 3 0
ditto	61	4 14 6	Gawton	54	1 14 6
South Caradon	76	3 17 6	ditto	51	2 5 0
ditto	74	3 18 6	ditto	48	1 17 6
ditto	58	9 13 0	ditto	37	2 17 0
ditto	57	4 17 6	Hingston Down	62	1 13 6
ditto	55	9 11 6	ditto	56	1 18 6
ditto	54	4 14 6	ditto	38	1 19 6
ditto	50	4 1 6	Phœnix	84	2 18 0
ditto	46	4 2 6	ditto	36	5 11 6
Marke Valley	87	2 7 6	West Maria & Fortescue	70	2 18 6
ditto	74	3 0 6	ditto	46	1 10 6
ditto	61	2 19 6	Bedford United	78	3 6 6
ditto	45	3 10 0	Prince of Wales	28	2 12 9
ditto	35	2 16 0	Wheal Edward	9	2 0 0

TOTAL PRODUCE.

Mines.	Tons.	Amount.	Mines.	Tons.	Amount.
Devon Great Con.	877	£1963 0 6	Hingston Down	156	£286 14 0
South Caradon	470	2597 16 [illegible]	Phœnix	120	449 14 0
Marke Valley	360	1060 8 0	West Maria, &c.	116	274 18 0
Wheal Crebor	285	661 8 0	Bedford United	78	257 8 0
Glasgow Caradon	235	904 13 0	Prince of Wales	28	73 10 0
Gawton	190	403 7 0	Wheal Edward	9	18 4 6

Average standard .... £94 10 0 | Average produce 6⅛

Average price per ton £3 1 0

Quantity of ore .... 2924 | Quantity of fine copper 180 tons 7 cwts.

Amount of money £8951 1 0

LAST SALE.—Average standard .... £86 5 0 | Average produce 8

Standard of corresponding sale last month, £88 0 0—Produce, 6⅝

COMPANIES BY WHOM THE ORES WERE PURCHASED.

Names.	Tons.	Amount.
Vivian and Sons	812	£2492 10 0
Grenfell and Sons	677½	2468 5 0
Nevill, Druce, and Co.	419	1002 12 6
Williams, Foster, and Co.	761	2166 13 0
Mason and Elkington	70	204 15 0
Charles J. Lambert	184½	616 5 6
Total	2924	£8951 1 0

NO SALE on Thursday next, October 25.

Copper ores for sale on Thursday next, at Tabb's Hotel, Redruth.—Mines and parcels.—Mellanear 498—West Tolgus 300—West Seton 236—East Pool 187—South Crofty 147—Carn Brea 45—West Roskear 27. Total, 1440 tons.

COPPER ORES.

Sampled Oct. 3, and sold at Swansea, Oct. 16.

Mines.	Tons.	Produce.	Price.	Mines.	Tons.	Produce.	Price.
Betts Cove	121	6	£3 7 0	Cavera Ore	85	6½	£3 8 6
ditto	121	6	3 7 0	ditto	85	6½	3 9 6
ditto	121	6	3 7 0	ditto	85	6½	3 7 6
ditto	120	6⅛	3 7 6	Aljustrel	99	5	2 9 6
ditto	108	7⅝	4 2 0	ditto	99	5	2 8 6
ditto	108	7⅝	4 2 6	ditto	99	5	2 11 6
ditto	107	7⅝	4 5 0	Knockmahon	116	10	5 18 6
ditto	103	7⅜	4 5 0	ditto	37	4⅛	2 1 0
ditto	102	7⅜	4 4 0	ditto	101	11⅞	7 4 6
Union Ore	81	5¾	3 3 0	Copper Ore	34	10⅛	5 17 0
ditto	81	5¾	3 3 6	ditto	33	18¾	11 9 6
ditto	80	5¾	3 3 0	ditto	93	5½	2 19 6
ditto	80	5¾	3 4 6	ditto	92	5½	3 1 0
ditto	86	5¾	3 2 6	Burnt Ore	156	2	0 11 6
ditto	86	5¾	3 1 0	Algerian Res.	80	3⅞	1 16 0
ditto	86	5⅞	3 0 6	ditto	40	3¾	1 13 0
ditto	85	5⅞	3 0 6	Cronebane	96	2⅛	0 11 6
N. Quebrada	84	7½	4 1 0	Berehaven	72	13⅛	7 19 0
ditto	83	7⅛	4 2 0	Telhadella	25	9⅛	5 4 0
ditto	83	7⅛	4 6 6	Copper Reg.	8	33	20 0 0
ditto	94	7⅛	4 2 6	ditto	3	47½	28 9 0
ditto	93	7⅛	4 2 6	ditto	5	32	19 9 0
Cavera Ore	86	6½	3 9 0				

TOTAL PRODUCE.

Mines.	Tons.	Amount.	Mines.	Tons.	Amount.
Betts Cove Ore	1011	£3830 5 0	Burnt Ore	156	£89 14 0
Union Ore	665	2070 13 0	Algerian Residues	120	210 0 0
New Quebrada	437	1810 17 0	Cronebane Ore	96	55 4 0
Cavera Ore	341	1170 1 6	Berehaven Ore	72	573 8 0
Aljustrel Ore	297	740 0 6	Telhadella Ore	25	130 0 0
Knockmahon	254	1492 17 6	Copper Regulus	16	342 12 0
Copper Ore	252	1114 17 0			

COMPANIES BY WHOM THE ORES WERE PURCHASED.

Names.	Tons.	Amount.
Copper Miners' Company	—	£ —
P. Grenfell and Sons	654	3,184 10 6
Nevill, Druce, and Co.	599	2,285 3 0
Vivian and Sons	677½	2,158 9 6
Williams, Foster, and Co.	1372	4,287 10 6
Charles Lambert and Co.	16	342 12 0
Sweetland, Tuttle, and Co.	60½	202 13 6
Landore Copper Company	136	330 15 6
Total	3742	£13,649 9 6

NO SALE October 30.

TOTALS AND AVERAGES.

	21 cwts.	Produce.	Price.	Per unit.	Standard.
Whole sale	3742	6[illegible]	£3 13 0	11s. 9d.	£82 8 4

Mining Correspondence.

BRITISH MINES.

ABERDAUNANT.—S. Toy. Oct. 17: The new shaft is now down 13 fms. 2 ft. blow the deep adit level. We have not yet got through the hard floor of ground we met with last week, but the men are making fair progress in sinking.

BODIDRIS.—H. Hotchkiss, Oct. 16: Setting report for the ensuing month: The 70 yard level on middle lode to drive west by four men, the month, at 160s. per fathom. The 60 to drive east by four men, the month, at 100s. per fathom. The cross-cut to drive south by four men, at 120s. per fathom. The 45 yard level to drive a cross cut north by four men, the month, at 180s. per fathom. To stope and sink in bottom of this level by two men, at 130s. per cubic fathom; this stope has slightly improved for lead ore this last few days. No change in any of the other drivings since my last calling for special remarks. The above prices include the delivery of stuff to surface.

CARGOLL.—J. Jennings, Oct. 17: Bowyer's Shaft: The lode in the 34 west, on No. 4 branch, has fallen off in value since last reported, but is again looking better, and producin good stones of lead, and am persuaded from indications hear that we shall yet have a good course of lead in continuing west at this level. We have resumed the drivage of the 34 east, on No. 4 branch, which I believe is the caunter part, or the same branch as seen in sinking the winze below the 24 east, on the south lode, and just beyond this point, which droops down behind the footwall of the winze; this end is now producing good saving work for lead ore and a promising end. In the 24 east, on the caunter lode, the lode is getting more wet, and carrying a beauti ul light flookan on the footwall of the lode, producing occasionally good veins of lead. The winze in the 25, east of shaft, on the south lode, is holed to the 34, and have just begun to stope the west end of this winze in the bottom of the 24, which is looking very well, and worth 8/. per fathom. A new winze to sink in the 24, 18 fms. west of shaft, on the south lode, and about 7 fms. before the 34 end west, the lode here is 18 in. wide, and producing good dressing work for lead. The stope in the back of the 24 east, on the caunter part, is worth 7/. per fathom. The stope in the back of the 24, 2 fathoms west of shaft, is worth 6/. per fathom. The lode in the adit level west, on the main lode, is looking very promising, and producing a little lead. Other bargains are without change.

CLEMENTINA.—John Roberts, William Bennetts. Oct. 17: We have sunk the engine-shaft during the month 1 fm., and driven south on the north and south lode at the 34 2 fms, and shortly we shall be ready for dividing the shaft and sending down the whim kibble to the 34. The lode at this level is about 1 ft wide, composed chiefly of quartz spotted with lead and blende and has a much kindlier appearance than it had on the 25th when at the same distance from the shaft; we shall shortly intersect the east and west lode, when we believe we shall meet with ore equal to, if not much better than, what was met with at the 25. We shall send out samples of the parcel of ore dressed directly.

COMBMARTIN.—T. Corner, Oct. 18: In the 37, driving east of cross course, the lode is without alteration, producing 4 cwts. of silver-lead per fathom. In the stope east of the winze below this level the lode is worth fully 5 cwts. of silver-lead per fathom. The stope in the back of the 37, driving east, will produce 6 cwts. of silver-lead per fathom. In the 28, driving west of Harris's shaft, the lode is 4 ft. wide, producing some good saving work, and, as we progress towards the cross-course, we look for considerable improvement. We have put a pare of men to clear the 15 east. In the back and bottom of this level the lode, so far as seen, has been stoped away in former workings considerably east of Harris's shaft. We have opened on the back of the lode, which produces splendid stones of silver-lead and gossan.

CWM DWYFOR.—J. Jewell, Oct. 18: The lode in the 20, driving west of Stewart's shaft, is 20 in. wide, yielding from 6 to 8 cwts. of lead ore per fathom, and is looking promising for speedy improvement. The lode has become regular, and I doubt not we shall shortly meet with the best part of the lode passed through in sinking the winze. The end of this level is now extended 8 fms. 1 ft. west of Stewart's shaft, and about 3 ft. west of the rise. In the rise over the back of the 20 the lode is 20 in. wide, yielding about 6 cwts. of lead ore per fathom. This rise is now up 5 ft. 6 in. above the 20. In the winze sinking below the 10, west of Stewart's shaft, the men are desuing the lode; consequently there is no change to report. This winze is now down 6 fms. 3 ft. below the 10, and we have only about 5 ft. more to sink and rise to effect a communication. I hope to complete this work next week, when I shall put six of the miners to drive on the 20 further west, and four miners to stope in the back of the 10, east and west of Stewart's shaft; and as soon as the 20 is driven ahead for room we shall commence to stope the back of the 20.

DERESBY MOUNTAIN.—John Roberts, Wm. Bennetts, Oct. 17: No. 1 Adit: We have just set this end to two men, at 4/. 5s per fathom. The portion of the lode we are carrying is 4 ft. wide, composed of rich gossans, galena, carbonate of lead, and blende, and all the elements that are necessary to indicate the near approach to a large course of lead. Its present value for blende is 1½ ton per fm. We can scarcely say how much lead, because it is so mixed up in the gossan and blende. We send you a sample by to night's train, so that you may see the nature of the lode.—No. 3 Adit: We have driven here during the month 8 ft. We have just taken down some of the lode, and we find it is pinched rather small. We have only 7 fms. more to drive to get under the lead winze in the No. 2 adit, and we recommend trying to clear it up and sinking directly, so as to effect a communication as soon as possible. We have completed the tramway, brought out a great deal of the stuff, and shall commence driving to morrow. After a protracted search we have found the mouth of the No. 5, or deepest adit, and we intend to push on the clearing as fast as possible; for, however rich the lodes may prove at the shallower level, we believe that the chief deposits or course of lead will be in depth.

DENBIGHSHIRE CONSOLIDATED.—J. Pryor, Oct. 18: The new lode intersected in the north cross is of the most promising character, but acting on your instructions I have suspended driving upon it, and put the men to continue the cross, as I quite think with you that there is another and stronger lode ahead. —Swallow: I ordered the men to put in a heavy blast in the roof this week, which brought down an immense quantity of stuff. I then examined the ground, and could distinctly hear the men at work in Parry's sump; this is most important, and we shall endeavour at once to effect a communication, and enable us to explore the whole of the ground from the western level, and reduce the cost of the mine considerably. During the past fortnight we have had tributers at work in No. 2 rise, and we shall sell to-morrow a small parcel of ore therefrom. I trust you will now hear of considerable progress being made throughout the mine, also some good returns, which a communication with Parry's should enable us to get.

EAST VAN.—W. Williams, Oct. 18: We have resumed the sinking of Tempest's shaft to prove what another 15 fms. will do. The 25 is extended about 50 fms. west of Tempest shaft. We are again crossing to try the lode, and are having a few spots of lead, but not worth valueing. The stope in the back of the cross-cut A is worth to-day 1 ton of lead ore per cubic fathom. We took four men from the stope to drive a cross-cut north from the winze about 5 fms. below the sole of the cross cut A to see how far the ore holds down. As I before told you, we have crossed at the bottom of the winze, and found nothing. During the last 18 months we have opened a very large amount of ground by driving, crossing, and sinking, and, as you know, have discovered nothing of value beside that which we have already discovered at cross cut A. Of late we have been stripping down and stoping at this point, and the higher we go we find it dies away, being worth at present only 1 ton per fathom, and in the cross-cut, 5 fms. below the cross cut A (now driven 5 ft. from the winze), we are beginning to have spots of lead, but as yet hardly worth valueing. We are having spots of lead in sinking the shaft.

EAST WHEAL LOVELL.—Richard Quentall, Oct. 17: The lode in the winze below the 100 west has been a little disordered, and at present not producing quite as much tin as it was, but it is again getting larger, and the ground is more favourable; sinking by six men, at 20/. per fathom. In the 100 west the lode is still small; driving by six men, at 18/. per fathom. The lode in the 80 east is about 4 in. wide, but poor; driving by four men, at 9/. per fathom. There being pretty much water in the shaft below the 17 on the north lode, we have put the men to drive a cross-cut north at the 40, and have set them 8 fms, or to cut the lode, at 7/. 5s. per fathom. This will test the lode at a depth at which it may be expected to prove productive.

GAWTON COPPER.—George Rowe, George Rowe, jun., Oct. 13: The lode in the 105 west is carried 7 ft. wide, of a very kindly appearance, being principally spar, mundic, and ore; worth 8/. per fathom. The lode in the stopes in the back of the 105 is worth 15/. per fathom. The lode in the 95 cross-cut is laid open 12 ft. wide, without any appearance of the south wall, and yielding 15 tons of arsenical mundic, spotted with ore, per fathom. The ground in the 85 cross cut south is highly mineralised, producing small branches of mundic and ore. The tribute department is without change.

GLASGOW CARADON CONSOLS.—Wm. Taylor, Wm. J. Taylor, Oct. 15: Elliott's shaft is down 13 fms. 3 ft. 6 in. below the 78, which is the required depth for 90 fm. level and tip plat and fort below; we shall now cut plat and drive with as little delay as possible. The winze sinking in the bottom of the 78, a few fathoms east of shaft, is down about 5 fms.; ground easy, and only a part of the lode carried, which is worth from 1/. to 15/. per fathom. In the 78 east we have finished cutting down the winze, and have commenced to cut into the south or main part of the lode to prove its value; the south branch west is worth 6/. per fathom. There is no further change in the cross-cut south at this level, still letting out some water, but no more lode yet. All the other points without any change to notice. The stopes and pitches throughout the mine continue to look very well, varying in value from 18/. to 25/. per fathom.—Surface Work: The whim engine is about fixed and ready to work; we are putting up poppet heads and fixing skip-road in order to commence drawing as early as possible.

GOGINAN AND LEVEL NEWYDD.—Oct. 17: Setting List: The western shaft to sink below the 130; the lode here is large, and spotted throughout with lead ore. The 130 to drive east of western shaft; the lode is large, and the portion carried is producing good saving work—a kindly lode. A cross-cut north near the present end of this level is suspended, being through the lode. A rise over this level 11 fms. west of western shaft is holed to the 120. The 130 to drive west of western shaft; here the lode contains a good mixture of ore, and likely to improve. A winze to sink below the 120, 70 fms. west of Bryn Pica shaft; this winze is now in the north part of the lode which is producing saving work, and we have about 3 ft. more to sink to reach the 130; when this is completed the men will be put to drive that level west. The 130 to drive west of the above winze. The 100 to drive east of Bryn Pica shaft; the lode is harder than of late, of a kindly appearance, showing spots of ore at times. In a stope over the 120, 35 fms. west of Bryn Pica shaft, the lode is worth ½ ton of ore per fathom. In a stope over the same level, 45 fms west of Bryn Pica shaft, the lode is producing 8 to 10 cwts. of ore per fathom. In a stope over the same, 65 fms. west of ditto, the lode is yielding 9 cwts. of ore per fathom. In a stope over the same, 90 fms. west of ditto, the lode is at present worth from 8 to 9 cwts. of ore per fathom. In a stope over the same, 11 fms. west of western shaft, the lode is here producing 16 cwts. of ore per fathom. A pitch below the 100, 10 fms. west of western lode, 5 ft. wide, is yielding 12 cwts. of ore per fathom. A pitch over the 100, 10 fms. west of ditto, is suspended, the lode having become poor. In a pitch over the 100, 12 fms. west of ditto, on the south part of the lode, the lode is producing ½ ton of ore per fathom. In a pitch over the 100, 20 fms. west of Taylor's shaft, the lode is worth 11 cwts of ore per fathom. As the lode is being cut open in the stopes over the 120 it will become more productive, and the returns increase.

GORSEDD AND MERLLYN CONSOLS.—W. Edwards, Oct. 18: The mine throughout looks quite as well as it ever has done. The upper eastern level is the best point in the mine—a splendid course of ore.—North Cross-Cut: The lode is not yet intersected, but the character of the ore is much the same as that being met with in our other operations, showing its close proximity. We are busy paring another parcel of 50 tons of lead.

GREAT DYLIFFE.—Evan Evans, Oct. 16: In the 133, east of Dyliffe lode have stripped the lode 3 fms.; it was much poorer this time than we exp not worth more than 6 cwts. of lead ore per fathom. The stripping in the 13 level west is better, worth about 14/. per fathom. The stope over this level near the shaft, is worth about 16/. per fathom. In the stope over this level through the lode; the lode in this place is strong, and is a mixture of c blende, and lead ores, worth for lead about 6/. per fathom. The winze on t lode is down about 5 fms. below the Dyliffe great adit level. The lode h proved much in that depth, and from the present appearance my opinion it will make a rich mine in depth. The stopes and pitches on Llecliwed-d are of about the same value as last week.

GREAT RETALLACK.—J. Harris, Oct. 13: This being our setting-day, the following bargains:—To drive the 53 west of whim-shaft, by four men, per fathom, the month; the lode at present is unproductive for blende, b have about 10 fms. further to drive to get under the run of good blende g gone below the 40. A bargain to strip down the blende part of the lode south side of the 53 east, by eight men, at 8/. per joy, and to be paid 10s. 6d. per ton for No. 1 and 2 blende, the men to pay all cost as heretofore worth from 2 to 3 tons of blende per fathom. A pitch in the 45 east, to four at 25s. per ton for No. 1 blende and 14s. for No. 2, for one month; lode 2 tons of blende per fathom.

GREAT RETALLACK.—J. Harris, Oct. 17: The men in stripping do blende part of the lode, at the south side of the 53 east, are breaking some lent work; worth from 2 to 3 tons of blende per fathom. There is no cha the 53 west since last reported on.

GREEN HURTH.—William Vipond, Oct. 12: I am glad to say we have siderable improvement in the mine the last few days. We left off workin end going south on the west branch, which turned so poor last week, and menced to work on what appeared to be another branch west of this. This as if it will prove to be an east and west vein from its present bearing, whi little north of west; it is yielding at present 1½ ton of ore per fathom. stope on the branch, west of level, is yielding ½ ton of ore per fathom. We to hole in a few days from the level below to the end of the branch, east of when we shall begin stoping this ground, which has yielded from 1 to 1½ ore per fathom in driving. The stope on No. 2 cross vein is yielding 8 cwts. per fathom. The working below the level north is yielding 16 cwts. of o fathom. In driving from the rise north in Fire Away we have an improve it was scarcely paying cost, but is now yielding 16 cwts. of ore per fathom. beds are rising in the cross-cut from the adit level, and the ground is getting for driving. We have delivered a wagon of ore to-day containing 3 tons 12

HINGSTON DOWN CONSOLS.—T. Richards, Oct. 18: Bailey's shaft: 17 fms. east and west, the lode continues very large, and is producing good st ore. In the 160, west of Nicholls' winze, the lode is worth 4 tons of ore, or fathom. In the stope in the back of the 160, east of Nicholls' winze, the worth 6 tons, or 18/. per fathom. In the cross-cut in the 140, east of Chyn rise, towards the north part of the lode, the ground is modera ely easy.

HOLMBUSH.—H Bennet, Oct 18: The shaftmen are at present engaged ing the 90 east of the engine-shaft, in which level we expect to find many f of good orey ground available for stoping. The 60 has been set to drive the engine-shaft, by six men, at 7/. per fathom; the lode in the present 18 in. wide, consisting of arsenical mundic and copper ore, and is a very pro lode. We have suspended the 60 end on the lead lode, also the 60 end Lord's shaft, *pro tempore*, in order that we may have a full pare of men t vate the wheel pit for the new water-wheel. Lord's shaft is set to sink be 60, by four men, at 14/. 10s. per fathom; the lode yields arsenical mundic the usual percentage. From the stoping department we continue to ma usual returns. The following is the value of the different stopes:—Two back of the 80, east of Miller's shaft, by six men, worth 20/. per fathom. in the back of the 80, west of Miller's shaft, by 22 men, worth 22/. per fath an average. One in the bottom of the 70, west of Miller's, by four men, 18/. per fathom. Two in the back of the 70, west of Miller's shaft, by seven worth 20/. per fathom. One in the back of 60, west of Miller's shaft, by men, worth 30/. per fathom for copper and arsenical mundic. One in the 60, west of Miller's shaft, by two men, worth 22/. per fathom. One back of the 60, west of Miller's shaft, by four men, worth 24/. per fathom. in the back of the 60, east of Miller's shaft, by 18 men, worth on an aver per fathom. Two in the back of the 60, east of Miller's shaft, by 10 men, 25/. per fathom each. Four in the back of the 60, west of Lord's sh 22 men, worth each 16/. per fathom. One stope in the back of the 50, Miller's shaft, by six men, worth 18/. per fathom. Two stopes in the back 50, west of Miller's shaft, by four men, are worth 16/. per fathom. A st the bottom of the 40, east of Miller's shaft, by four men, worth 20/. per f Three stopes in back of the 40, west of Miller's shaft, by six men, worth each. One stope in back of the 40, west of Miller's shaft, by six men, worth fm. A stope in the back of the 50, on the Flap Jack lode, by four men, w per fathom. A stope in bottom of the 50, on Flap Jack lode, by four men, 18/. per fathom. I am pleased to say that the new stopes at the 50, east of shaft, are opening up remarkably well. The stopes also at the 60 are lookin and occasionally yield bunches of copper ore. During the past four we have sampled 800 tons of arsenical mundic and copper. We are at present ing an adit shaft to the east of Lord's shaft, and are down about 30 fms.; fathoms deeper we shall communicate with the adit, and shall thereby ha many fathoms of ground available for stoping when necessary. The mac is in good working order.

KINGSTON CONSOLS.—J. Chynoweth, Oct. 18: Good progress has bee in driving the 30 west of engine-shaft. Lode 2 ft. wide, worth 1 ton of and 5 cwts. of lead per fathom. We have now about 6 fms. more to drive municate the level driving from No. 4 winze. In the 30, east of No. 4 win part of lode we are driving on is about 2 ft. wide, worth 1 ton of blende and of lead per fathom. On this point I believe we have more lode in sout have two men driving south-east on a part of lode, fully worth 1½ ton of and 5 cwts. of lead per fathom. In the 18, east of engine-shaft, the lode much disordered and fallen off in value. In the 18 west the lode is 4 ft. composed of lead, blende, grossan, quartz, and sulphur-mundic, of very ing character. Four stopes working in the back of the 18, worth their value for lead and blende. All the machinery giving good satisfaction.

KIT HILL TUNNEL.—H. Bennett, Oct. 18: Satisfactory progress is made with the drivage of this tunnel; the men are at present employed a railroad, and other preliminary work. It is yet premature to hope for t section of lodes or branches, but we are, nevertheless, confident of making of discoveries as the tunnel is extended into the hill, and that within a siderable number of fathoms drivage.

LADYWELL.—Arthur Waters, Oct. 18: There is no improvement to wri since my report of last week. Our sampling to-day is for 40 tons lead ore, next week.

LLAN GAN (Lead).—Capt. Wasley, Oct. 17: Engine shaft Cross-cut: to a change in the nature of the ground, and other favourable signs that in the working, indications show that we are in near proximity, and a any moment the lode may be reached. Driving on the lode east continue factor, with a marked tendency to improveme t since last week.—Wright The stoping here remains of the same productive character, and is turning usual quantity and quality of ore for the dressing floors.—Old Engine shaft stoping west of shaft and in the workings is turning out a large quantity of lent ore.—Richards's Lode: This lode is still looking well, and appears s out as we get further in depth and to the east. I have not opened out c west at present.—Lead Dressing: We are progressing very favourably w dressing, and our stock of finished ore on the floors is quickly increasi with the good work now going to the floors, we shall soon have another c ment of dressed lead for the market.

LOVELL.—J. Prisk, Oct. 10: Telegram: The lode in the shaft is still ing 4 tons of tin per fathom; mine looking well; report delayed.

MELLANEAR.—J. Gilbert, Oct. 17: We set the following bargains on S last:—The 50 to drive west of the skip-shaft, by four men, at 3/. 5s per f the lode in this end is 4 ft. wide, and worth 3½ tons of copper ore per A rise in the back of this level, about 4 fms. behind the end, to four men, a per fathom—to carry the rise 10 ft. long; the lode is 3 ft. wide, and worth of ore per fathom. The 60 to drive east from No. 3 rise, by four men, at per fathom; the lode is 2 ft. wide, and worth 1½ ton of ore per fathom stope in the back of the 67, east and west of No. 1 rise, by four men, at 2 fathom; the lode is 3½ ft. wide, and worth 4 tons of ore per fathom. T in the bottom of this level west of the cross-course, by four men, at 2 fathom. The lode is 7 ft. wide, and worth 8 tons of ore per fathom. The drive west of the skip-shaft, by six men, at 11/. 10s. per fathom; but there lode carried is 4 ft. wide, and worth 3 tons of ore per fathom, but there lode extending in the south side.—Gundry's Shaft: The 90 to drive ea shaft, by six men, at 4/. per fathom; the lode is 3½ ft. wide, and worth 2 ore per fathom; this end is still very dry for the bottom level in our mine intend after we have made the communication with the 90 west of the ski to drive still further south to prove if there is any more lode standing in rection. The 80 to drive west from shaft, by four men, at 7/. 10s.; the 4 ft. wide, and producing a little saving work for copper ore. The stope back of this level east of shaft, by six men, at 2/. 10s. per fathom; the lode wide, and worth 5 tons of ore per fathom. The 70 west of shaft, by four 5/. 10s. per fathom; the lode is 4 ft. wide, and worth 2 tons of ore per f The 60 to drive east of shaft, by four men, at 3/. per fathom; the lode wide, and worth 2½ tons of ore per fathom. A new rise in the back of th by four men, at 2/. 17s 6d. per fathom; this rise is about 6 fms. behind the and the lode si 4 ft. wide, and worth 3½ tons of ore per fathom. No in the back of this level, east of cross cut, by four men, at 5/.; to carry 10 ft. long and the full width of the lode. This rise has further improve lode is now 5 ft. wide, and worth 6 tons of ore per fathom. The 6 shaft, on the north part, to four men, at 5/. per fathom; the lode is 3 ft. wi producing 1 ton of ore per fathom. We also set 10 tribute pitches to 30 me average price of 8s. 6d. in 14. We sampled yesterday (computed) 420 copper ore.

MONYDD GORDDU.—James G. Green, Oct. 17: Since writing you last rain has given us plenty of water, and the mine is being cleared very rapidl well I hope to have the shaft drained by to-morrow night, and sinking re The stopes throughout the mine maintain their productiveness. A new the back of the 12 on the south lode, west of cross-cut, has been started men, at 70s. per fathom. The cross-cut to the north lode is progressing favo As soon as the mine is clear of water we shall commence crushing towards sampling, and every effort shall be used to get a parcel of ore ready as p sible.

NEW BRONFLOYD.—Thomas Kemp, Oct. 18: No. 3 Shaft, North Lode part of the lode opened on by the 121 end, west from shaft, carries stones ore, but not to value. I should say this level ought soon to enter the ore coming down from the level over—the 110. To a point of about 20 fms west of shaft we have started a winze in the bottom of the 110, the object is to effect a communication between this and the 121; the part of the lode in sinking is worth 20 cwts. of ore per fathom—set to four men, at 22s. The lode in the stope to the east of winze over the 110 is twitched up to a wide, which is much reduced in value; now worth for that width from 15 cwts. of ore per fathom. No doubt in putting the next stope over the will open out to its former size and value; the men here are now empl throwing down their orestuff. The men in the stope to the west of ditto coming week, when they will resume stoping on a lode worth 20 cwts. of engaged in filling up the workings, which will be completed the early pa cubic fathom. In Curtis's cross-cut south in the 73 east we have inter branch of carbonate of lime about 6 in. wide, carrying a well-defined wall, 3 ft. in 6 ft. Whether this will prove to be the north wall of the middle

cannot yet definitely say. All other bargains throughout the mine are without any change to report since my last. The carpenters are getting on well in putting up the bob-stands, &c., which will be completed in a day or two, when we shall proceed to fix angle-bob, &c.; this work is being pushed on with all energy. The tons of silver lead ore sold to the Panther Company on the 12th inst. realised l. 2s. 6d. per ton. We have had some showers of rain within the last few days, and I am pleased to say we have a better supply of water. Hauling and dressing going on as fast as possible. Machinery in fair working order.

NEW SOUTH MERLLYN.—R. Rowlands, Oct. 18: The 80 yards level south is very promising. Our other operation is producing good stuff for the floors, and I hope to have another parcel ready next week.

NEW TYLLWYD.—Oct. 16: The men have got in about 1 fm. east from the cross-cut under the south-west branch at the 20. The lode is 4 ft. wide, and Mr. Eddy reports there is capital ore in it, of which he has sent specimens to the office. The lode looks promising for future improvement.

NORTH LAXEY.—J. Sowden, Oct. 12: Setting Report: The 146 end to drive south, by two miners and two labourers, at 10l. per fathom. The 146 end north, by two miners and two labourers, at 10l. per fathom. The 121 stope, by four miners and four labourers, at 5l. per fathom. The 110 cross-cut, by one miner and one labourer, at 9l. per fathom. The 70 end to drive, by one miner and one labourer, at 7l. per fathom. The 7 roof stope, by five miners and three labourers, at 4l. per fathom. The 60 sole stope, by four miners and four labourers, at 3l. 15s. per fathom. The 60 roof stope, by four miners and four labourers, at 4l. per fm., drive south at 6l. per fathom. The 50 roof stope, by three miners and three labourers, at 3l. 15s. per fathom. The 40 end to drive north, by one miner and one labourer, at 7l. per fathom.

—J. Sowden, Oct. 16: No lode has been taken down in the 146 ends since last report. The 121 stope continues to look well in depth, and going north, now worth 2 tons of lead per fathom. The stope in the sole of the 60 (or what we call the 70 roof stope) is worth 15 cwts. per fathom. The new stope in the back of the 60 is worth fully 1 ton of lead per fathom. The 60 roof stope is worth per fathom. The stope in the roof of the 50 is worth 10 cwts. per fathom. The lode in the 40 end is 1½ ft. wide, and producing saving stuff for the washing-floors. In the 110 cross cut there is lead coming from the cavity. The new lode in the 70 end is 1 ft wide, and yielding good stones of lead.

...OLA HILLS.—John Phillips, Oct. 17: In the end driving west at the 23 the lode is 4 feet wide, carrying a great deal of mundic, barytes, and gossan, with stones of lead ore occasionally; from its very promising appearance we are expecting a good course of ore daily. In the 30, driving east of engine-shaft, we have a great improvement since last report; the lode is 5 ft. wide, of the most promising character, and I am glad to say it is now carrying good work for 1 ft. wide on the south side; it seems as if there is a rich lode coming in this end, although we are some fathoms west of the new run of lead ground gone down in the bottom of the level, east of No. 2 cross-cut at the 23; this looks well for the 40. We have cut a little on the lode at the 40, and we are pleased to be able to say that the lode looks very well indeed, carrying fine stones of lead, rich copper ore, barytes, and strong mundic; this lode is embedded in a beautiful elvan; we are quite satisfied this will be a splendid run of rich ground for lead and copper ores. The fact is the mine is opening out splendidly in the winze sinking on No. 1 north lode, east of engine shaft, and east of No. 2 cross-cut at the 23; as far as we have gone down we have a rich lode for lead. It will produce fully 25 cwts. of lead per fathom, and is improving as depth is attained. The lode in the winze is 5 ft. wide.—P.S. Since writing the above the men who are sinking the winze have just come up from underground, and brought up some splendid stones of lead, and report that the lode is now worth fully 2 tons per fathom, and improving. Telegram.—John Phillips, Oct. 18: I have now come from underground. The lode in the winze sinking under the 23 has greatly improved since yesterday; the present value is 5 tons of lead, or 75l. per fathom.

PANDORA.—Capt. Nottingham, Oct. 17: We have more lodestuff coming in the end of the 33 cross-cut east, and lead showing with it. There is no change in the other bargains calling for remark.

PARYS MOUNTAIN.—T. Mitchell, Oct. 17: The ground in the 90 cross-cut still continues to present a favourable appearance, and rich stones of copper ore have been broken from the end this week. Some of the tribute pitches have also improved this last day or two.

PATELEY BRIDGE.—C. Williams, Oct. 18: The Rake vein, in the 30, east of engine-shaft, is 6 ft. 6 in. in width, consisting of carbonate of lime, barytes, spar, and a fine course of lead ore, worth 2 tons per fathom. The ground easy to work, and the men are making good progress. The vein in the rise and stope above this level is 5 ft. wide, and producing upon an average 27 cwts. of lead ore per fathom for 10 fms. in length; ground fair. The same vein in the 30 west is wide, of a very congenial nature, principally composed of gossan, fluor-spar, and lead ore, producing of the latter 15 cwts. per fathom, with every appearance of speedy improvement. Fielding's vein, over the 20 north west, is 4 ft. in width, worth 1 ton of lead ore per fathom. The Lumb vein, in the south cross-cut, at the 20 west, is 10 to 12 ft. in width; the part carried (4 ft.) is producing 1 ton of lead ore per fathom. The Sun vein, going east under Gillfield level, is 6 ft. in width, and worth ½ ton of lead ore per fathom. Dressing and smelting proceeding favourably. Machinery in good repair.

PEDN-AN-DREA CONSOLIDATED.—W. Tregay, Oct. 11: The 90, west end, is worth 40l. per fathom. The 90, west rise, is worth 60l. per fathom. All other are much as last reported. We sold on Saturday last, at Carvedras, 10 tons 3 qrs. 16 lbs. of black tin, at 41l. 12s. 6d. per ton=434l. 15s.

PENNANT.—Oct. 18: The engine shaft is now down 16 yards under the 80; the ground is much the same as for some time past, a nice killas carrying a leader on the footwall, of quartz, spotted with lead. The quartz is a new material in our shaft, indicative of a great change taking place as depth is attained. In the rise at the 80 east, which is being put up for ventilation and other purposes, there is a lode, producing lumps of lead, and, from appearances to-day, will open up great stopes for carbonate. The 80 west must, I think, be approaching something good; the end is now full of cavities containing sulphate, sulphur, and letting out a quantity of water. The stopes in the back of the 60 west are producing capital stuff, and I am now expecting that our cross-cut out of the shaft will soon intersect the south lode. This should enable us, when opened out, to make good returns of lead.

PENSTRUTHAL.—W. Polkinghorne, Oct. 15: At Highburrow shaft, sinking below the 72, the lode is 5 ft. wide, composed capel, of peach, tin, and mundic; a fine looking lode, and from its present indications and appearance I certainly think we shall have a change for copper ore shortly. In the 72, driving east, the lode is producing tin worth 3l. per fm. In the 72, driving west of shaft, the lode is wide, worth for tin and copper ore 3l. per fm.; a good looking lode, and has every indication of an early improvement. We have continued to drive the cross-cut south in the 58, west of Highburrow shaft, and we expect to intersect the lode we cut last week in the 46 cross-cut above in 2 fms. driving. In the 45 fm. level, west of Highburrow shaft, we have commenced to open east and west on the lode we met with last week; the lode is 2 ft. wide, producing tin and copper ores l. per fathom; this is a promising lode at present, and if it continues to our expectation we shall be able to increase our returns of tin.

PENLLIMMON.—J. Garland, Oct. 17: The mine being drained throughout the following bargains have been set this day:—The 36 to drive east of new shaft, by men, at 10l. per fathom; in this end the ground is hard, and the lode small and poor. The same level, to drive east and west on Jones's winze, has been set to 10 men, at 12l. per fathom; the men to draw their stuff by tackle up to the level. In these two ends the ground is chiefly of hard sandstone; the lode is large, composed of calcspar, with occasional stones of lead ore, but not sufficient to value. An improvement may be expected in the eastern drivage shortly. In Jones's winze the 36 has also been set to 12 men, to be driven east and west at 10l. 0s. per fathom. In the western end the lode is very kindly, and produces 15 cwts. of lead ore per fathom. The eastern end produces saving work but an improvement may be expected as it nears the cross-course. A rise (fms. long) has been set to four men in the back of the 24, east of new winze, at per fathom: the lode in same averages a produce of 10 cwts. of lead ore per fathom. The object of this rise is to make advantage for stoping, and also to prove the ground. A stope east of rise over the 24 has been set to eight men, at per fathom, where the lode produces full 1 ton of lead ore per fathom. A stope has also been set over the 24, on the south part of lode, to six men, at per fathom; the lode produces 10 cwts. of lead ore, and should improve. The stope on this part of the lode being poor has been suspended. Drawing and dressing have also been resumed, and will be kept on as fast as possible. The machinery throughout the mine is in good working order, with a plentiful supply of water.

PRINCE OF WALES.—John Andrews, Oct. 17: There is scarcely any change in the stope in the back of the 24 since reported on for the meeting about a week ago. We shall push on the casing, dividing, ladder road, &c., at Vigar's shaft, so as to get it in order for drawing through as soon as possible.

ROMAN GRAVELS.—Arthur Waters, Oct. 18: There is no material change to report in the mine for the last week or two. All the bargains and ends from the the 50 are yielding the usual quantities of ore. We have commenced to send up and hang in the main rods to the new engine, and hope to make good progress with the work from this time forward. Our sampling for to-day is for tons of lead ore, and 25 tons of blende, for sale next week.

SAINT PATRICK.—William Francis, Oct. 17: The ground in the 120 yard level continues to improve a little for driving, and there is a little spar in the course (which is from 1 to 2 in. wide) mixed with clay. I hope to report a substantial improvement next week. The chert in the 60 cross cut north is of the best character, and shows indications of nearing a main vein continually.

SOUTH CONDURROW.—William Rich, William Williams, Henry Abraham, Oct.: The Plantation shaft is holed to the 30, which has given good ventilation. We have begun to clear the 50 on West Basset lode to get under this shaft. The east of engine shaft, is worth 10l. per fathom. The 40 west is letting out water, and looks likely to improve. The 50 east is worth 8l. per fathom. The west yields a little tin. The rise in the back of the 60 west is worth 18l. per fathom. The 60 end, west of winze, is worth 10l. per fathom. The 70 west on copper lode is worth 8l. per fathom. The rise in the back of the 73 west on the lode towards Plantation shaft is worth 10l. per fathom. The 80 fm. level improved; now worth 20l. per fathom. The 93 fm. level west is in a poor ground.

SOUTH DARREN.—H. James, A. Gundry, Oct. 16: Setting Report: No. 1 stope east of winze in the 90 at 4l. 15s. per fathom. No. 2 stope east of winze in the same level at 4l. 10s. per fathom; value of the former 27l. per fathom, the latter l. per fathom. The 80 to drive west, by six men, at 8l. 10s. per fathom; no change here since last setting report. No. 1 stope in this level at 4l. 5s. per fathom; value 14l. per fathom. No. 2 stope at 4l. 5s. per fathom; value 10l. per fathom. No. 3 and 4 stopes at 3l. 10s.; value of the former 8l. per fathom, and the latter 6l. per fathom. The winze in the bottom of the 70 at 12l. per fathom. The enginemen are still engaged repairing the engine-shaft. The engine is getting on well towards completion, and will, we hope, be soon at work. The machinery is working well. The 25 tons of silver-lead ore sold on the 6th brought l. 6s. per ton.

SOUTH ROMAN GRAVELS.—John W. Powning, Oct. 18: Shelfield, Oct. 18: We have passed through the great cavity in the 45, east of shaft, and are now into a strong spar lode, spotted with lead and patches of blende, a very promising lode. The lode in the 45 west is still of a most promising character, and has yielded some good stones of ore during the past week.

SOUTH TOLCARNE.—W. Rich, W. Hambly, Oct 16: There has been but little done in the bottom of the north shaft since our report of last week, as the men have been engaged putting in bearers and cistern, preparatory to fixing a plunger. We hope to fix this work and resume the sinking of the shaft before the end of the week. The 24 end west is yielding good stones of copper, and the lode increasing in size as we extend west. We have not yet intersected the South Condurrow lode at the trial shaft, but hope to do so very shortly.

SOUTH WENDRON (near Helston).—J. Prisk: This mine is situated in the East and Lovell district, which has always been famous for large and rich deposits of tin ore. It is close to the East Lovell, and adjoins the Lovell, both of which have proved extremely rich mines. In the former the lode made a rapid dip westward from about the 45, and continued to be very rich to 120 fms., or even below, and in its richest parts was worth over 1400l. per fathom. In the Lovell the lode is 12 ft. wide, and producing 4 tons of tin per fathom. The South Wendron, which is worked by three private gentlemen in London, has also one of these large lodes, and is showing signs of great wealth. The engine-shaft is sunk to the 46, then a drivage eastward through a lode 12 ft. wide for about 12 fms. at the end of which a rich course of tin was discovered, on which nine men are now employed, and the ore now being sent to the surface ranks in quality with the mines referred to above, and daily opening richer as depth is attained. In this South Wendron Mine a large amount of money has been expended in machinery, sinking the main shaft, winzes for ventilation, and levels, but having done all this the mine can now be economically worked, as all the pumping, winding, and stamping is done by water-power. Therefore, as soon as the present rich lode is thoroughly opened out, it will be fully equal in richness to the mines referred to above, and from the great water-power it possesses the profits must be very great, as all the expense of coal, the working of steam engines, and other expenses which these entail will be saved.

TOLGUS CONSOLS.—W. C. Vivian, Oct. 18: In sinking below the 25 fm. level, on the north branches, we have come down on and cut into, or, speaking correctly, broken to a slight extent the south part of the lode, to which reference has been made in my previous reports. From this south part rich stones of copper ore have been broken, presenting every appearance indicative of a much greater improvement than anything we have previously met with, We are preparing tackle, which will enable us to contend with the water, and continue to sink sufficiently to show unmistakably that we have at last hit the course of ore in our western ground corresponding with that found by our predecessors in the eastern section. We calculate to resume sinking on Monday next.

TREBEIGH CONSOLS.—J. Gifford, Oct. 16: We have just now picked into the footwall of the lode in the 45, about 7 ft. north of the shaft. We have cut into it about 6 in.; it is composed of quartz and capel, with spots of mundic, blende, and silver-lead ore intermixed, and letting out water freely. So far as seen, it looks very promising. Of this you shall hear more to morrow, either by letter or wire, if necessary.

TREBEIGH CONSOLS.—J. Gifford, Oct. 17: We have cut through the lode in the 45 cross-cut north of Ward's engine-shaft, where it is 2 ft. wide, with a branch of caple and quartz on the hanging or south wall, 8 in. wide, intermixed with arsenical mundic, blende, and lead ores, also good spots of yellow copper; the remainder is a mixture of killas, mundic, caple, and quartz; a strong kindly lode, and letting out much water. We shall not be able to see anything more of it before Saturday next, as we have a piece of weak ground between the shaft and the lode which must be taken down and secured first; the same will desue 8 ft. in length of the lode; and when it is taken down I will immediately advise you.

TRELEIGH WOOD.—W. Goldsworthy, Oct. 18: There is no change to notice in the mine this week. I hope to get all right to drive the 44 west on Monday. All the machinery is in good working order.

WEST GODOLPHIN.—John Pope, Oct. 15: We had a terrible gale of wind last night, which tore the roof off the account-house as well as the smiths' shops, and blew in one of the windows of Wilson's engine-house. The gale has now abated, and the masons are busily engaged repairing damage. Wilson's engine is forking rapidly at nine strokes per minute; water down 55 fms. 4 ft.

— Oct. 16: Pink lode in the 50 west has improved, now worth 8l. per fathom. Water down to the 60 fathom level.

WEST GODOLPHIN.—John Pope, Oct. 17: I am pleased to inform you that we have drained the 60 on Wilson's lode; we shall connect the drawing lift (from the 60 to the 70) some time to-day; then we shall soon have the mine all in fork. I calculate by the end of this week to have all the places working, with the exception of sinking Wilson's engine-shaft. I will in the early part of next week send you particulars of setting. Pink lode in the 60 driving west is 18 in. wide; a very kindly lode, worth 8l. per fathom. The engineers are busily engaged erecting the whim engine, which we calculate will be got in order for drawing this week.

WEST PATELEY BRIDGE.—D. Williams. Oct. 18: No. 2 shaft upon Golden Fleece vein is down 21 fms. from the surface. The vein in the bottom is 4 ft. wide, filled with gossan, clay, spar, and solid stones of lead ore. On Monday next we shall commence driving two levels north-west and south-east upon the vein, which I have no doubt will open out a good length of profitable stoping ground. In the drivage east from the No. 1 shaft the lode is 2 ft., carrying a solid branch of ore on each side of the vein worth about 8 cwts. per fathom. The Craven cross-vein in the 53 is at present 7 ft. wide, chiefly composed of gossan, clay, spar, and good stones of lead ore. On surface grating and dressing is being carried forward as fast as possible.

WEST ROSKEAR.—H. Stephens, W. Bennetts, Oct. 18: We have a troublesome piece of work in clearing the choke and securing the shaft. We think the worst of it is done now, and hope to drop the lift deeper before the end of this week. Our copper sampling is computed 27 tons, and we intend sampling about 70 tons of blende on Saturday next.

WEST TANKERVILLE.—Arthur Waters. Oct 18: The 86 south is in a lode 7 ft. wide, worth for lead ore and blende together 20l. per fathom. The 86, north of cross cut, is worth 10l. per fathom. The winze in the 75 is worth 10l. per fm. The 75, south of shaft, is in a lode 4 ft. wide, worth ½ ton of lead ore per fathom. The four stopes in the back of this level are each worth ¾ ton of lead ore per fathom. The 63 is in a lode 2½ ft. wide, worth ½ ton of lead ore per fathom. The two stopes in the back of this level are each worth ½ ton of lead ore per fm.

WEST WHEAL TOLGUS.—Oct. 17: Setting List.—Taylor's Shaft: Cutting plat and sinking shaft in killas, at per cubic fathom. In the 145 west the lode is 3 ft. wide, yielding 1 ton of ore per fathom. In the 135 west the lode is all the width of the end, split and disordered, with very little ore. In the 125 west the lode is 4 ft. wide, yielding 4 tons of ore per fathom.—Winze to sink under the 115 west: Lode 4 ft. wide, yielding 3 tons of ore per fathom. In the stope in back of the 135 west, east of No. 3 winze, the lode is yielding 12 tons of ore, worth 80l. per fathom. In the stope in back of the 135 west, east of No. 2 winze, the lode is yielding 6 tons of ore, worth 40l. per fathom. In the stope back and side 135 west, east of No. 5 winze, the lode is yielding 6 tons of ore, worth 34l. per fm.—Stope in back of 135 east, by No. 2 pare: Lode yielding 2 tons of ore, worth 10l. per fathom. Suspended stope in back of the 135 west; also rise in the 135 west, and No. 5 winze, under the 125 west.—Richards's Shaft: Richards's shaft to sink under the 95. Lode large, spotted with ore, but nothing to value. In the 95 west the lode is split into branches and poor. In the 75 west the lode is small and poor. In the 65 west the lode is only just dividing the ground. In the 55 east the lode is small, ground broken up and disordered.

WHEAL CREBOR.—John Andrews, Oct. 16: The lode in the 120 east has improved during the past week, and is now 6 ft. wide, 3 ft. of the south part of which is worth 12l. per fathom. The lode in the stope in the back of the 120 is 5 ft. wide, and worth 12l. per fathom. The lode in the 108 east is looking more promising, and is yielding mundic, with good stones of copper ore intermixed. There is no change in the stopes in the back of the 108, as we are stoping by the side of the lode. The lode in the 72 east is opening out wider, and is letting out more water, but no other change. In the 48 east no lode has been taken down for the week.

WHEAL KITTY (St. Agnes).—S. Davey, R. Harris, Oct. 13: New Shaft—Pryor's Lode: The lode in the 154, driving west of the shaft, is 2½ ft. wide, producing saving work for the stamps. The lode in the 142, driving west of shaft, is 4 ft. wide, and worth for tin 10l. per fathom. The lode in the 142, driving east of shaft, is at present disordered by a small crossing. The lode in the 130, driving west of the shaft, is worth for tin 8l. per fathom. The lode in the 118, driving west of the shaft, is 2 ft. wide, and worth for tin 7l. per fathom.—Old Lode: The lode in the 100, driving west of the engine-shaft, is 2½ ft. wide, and worth for tin 9l. per fathom. The lode in the 90, driving east of engine-shaft, is worth for tin 6l. per fathom.

WHEAL NEWTON.—H. Bennett, Oct. 18: We find that the silver lode in the 30 end, west of the engine shaft, gradually improves as the level is extended, indicating that a good discovery may be expected. Hampton's shaft is being sunk as rapidly under the circumstances as can be expected, the influx of water somewhat retarding our operations. The lode in the shaft has become well defined, and is of very promising appearance. All other points are without change calling for notice. Next Saturday being the monthly setting-day, a detailed report shall follow.

WHEAL PRUSSIA.—W. Tregay, Oct. 11: The bottom end west is worth 10l. per fathom. The 40 east produces 1 ton of black tin per fathom, and the 40 west end 2 tons. Nothing is being done in sinking the engine-shaft until we get the engine to work.

WHEAL UNY.—Wm Rich, Matthew Rogers, Joseph Rich, Oct. 18: There is very little alteration in the bottom of Hind's shaft since our report of last week. The 160 end west is worth 10l. per fathom. The rise in the 160 east towards Goodinge's shaft carries a little tin. The 150 end west is worth 9l. per fathom. The 150, east of King's, carries stones of tin. The 140 east is worth 12l. per fm. The 130 east is worth 10l. per fm. The 60, west of incline, is worth 7l. per fathom.

THE VAN MINES—MONTHLY REPORT.

Oct. 17.—Seaham's shaft is down 7 fms. below the 105; this has been taken to sink to the 120, as before reported. In the 105 east the cross-cut north at this end is driven 7 fms. 0 ft. 6 in., and not yet through the lode; at its present end there is a great rush of water and gas, and the lode composed of limespar, large patches of blende, and a little lead ore; set to six men, at 240s. per fathom. In the 105 west we are driving upon a strong lode here, but not quite so productive for lead for the last day or two; set to six men, at 220s. per fathom. The 90 is extended west of shaft 88 fathoms, and is worth at present end 55l. per cubic fathoms for lead ore; set to six men, at 160s. per fathom. The 65 fm. winze, sinking below this level, is down 10 fathoms. We are taking down a part of the lode in sinking this winze, which is worth for lead ore 30l. per cubic fathom. We have 5 fms. more to sink in order to reach the 105, and to extend that level 6 fms. to effect communication with the winze, which done we shall cross north to prove the width and value of the lode. The winze is set to six men, at 300s. per fathom. The stripping of the lode to full width in the side of this level, at a point 60 fms. west of shaft, is set to eight men, at 140s. per fathom. The stopes in the back of this level are set as follows:—The 30 fm. stope, to eight men, at 70s. per fathom; the 20 fm. stope, to four men, at 70s. per fathom; the 10 fm. stope east, to eight men, at 60s. per fathom; the 10 fm. stope east, to eight men, at 60s. per fathom. The stripping of the lode to the full width in the side of the 90 fathom level, at a point about 55 fms. east of shaft, is set to eight men, at 70s. per fathom. The average value of the lode at these several points is 29l. per cubic fathom for lead ore; average width 28 ft., although in some places it is 39 ft. wide. A driving upon a branch of the lode which has gone north, at a point about 42 fms. west of shaft, is set to six men, at 240s. per fathom, worth for lead ore 16l. per cubic fathom. The 90, east of shaft, is set to four men, to drive by the side of the lode, at 60s.; we have taken down a part of the lode behind this end, which is worth for lead ore 18l. per cubic fathom. The 75, west of shaft, is set to four men, at 80s. per fathom. We shall commence crossing north to prove the lode next week, which so far as seen in driving alongside looks promising for a productive lode; this end is now 146 fms. west of Seaham's shaft. The stope in the back of this level, 130 fms. west of shaft, is set to eight men, at 80s. per fathom, worth for lead ore 30l. per cubic fathom; average width 8 ft. A winze to be sunk below this level, at a point 90 fms. west of shaft, is set to nine men, 15 fms. stent, at 260s. per fathom; this is for the purpose of ventilating the 90, and to afford a passage for stuff to fill up stopes.

The stopes in the back of the 75 are set as follows:—The 100, to six men, at 65s. per fathom. The 90, to twelve men, at 70s. per fathom. The 80, to twelve men, at 70s. per fathom. The 70, to six men, at 70s. per fathom. The 60, to eight men, at 70s. per fathom. The 50, to eight men, at 70s. per fathom. The 40, to eight men, at 65s. per fathom. The 30, to eight men, at 65s. per fathom. These stopes are worth on the average 21l. per cubic fathom; mean witdh, 18 ft. The 75, east of shaft, is set to four men, at 70s. per fathom. The stripping of the lode to the full width in the side of the level, at a point 50 fms. east of shaft, is set to six men, at 80s. per fathom. The same at a point 25 fathoms east of shaft is set to six men, at 70s. per fathom. These two points are worth for lead ore 27l. and 15l. per fathom respectively. The 60, east of shaft, is set to four men, at 70s. per fathom, to drive alongside the lode. The 60 fm. permanent level west is set to six men, at 10 s. per fathom. The 60, west of shaft, is this month set to four men, at 70s. per fathom, to drive alongside the lode. The stopes in the back of the level are set as follows:—The 115, to eight men, at 65s. per fathom. The 100, to eight men, at 65s. per fathom. The 90, to six men, at 62s. 6d. per fathom. The 72, to eight men, at 62s. 6d. per fathom. The 64, to eight men, at 62s. 6d. per fathom. The 56, to eight men, at 65s. per fathom. The 48 fm. level, to eight men, at 65s. per fathom. The 22, to eight men, at 65s. per fathom. The 16, to eight men, at 65s. per fathom. The 8, to eight men, at 65s. per fathom. These are worth on the average 18l. per cubic fathom for lead ore; average width, 16 ft. 6 in. In the 45 fm. permanent level the men are now crossing from the 110 winze to this level, in order to facilitate the transmission of the stuff to fill up the stopes; set to four men, at 100s. per fathom. The stopes in the back of the 45 are set as follows:—The 54 east, to eight men, at 110s. per fathom. The 40 east, to eight men, at 100s. per fathom. The 70 west, to six men, at 100s. per fathom. The 90 west, to eight men, at 80s. per fathom. These stopes are worth 20l. per cubic fathom for lead ore; average width, 15 ft.

Surface: We intend starting one-half of our new halvan floor machinery on Friday, and until the 36 inch engine is ready we shall drive with a portable. The other parts are in a forward state towards completion. The machinery is in good working order. Our four-weekly sale takes place to-morrow upon 500 tons of lead, and 150 tons of blende.—William Williams.

LEADHILLS—MONTHLY REPORT.

Oct. 17.—Brow Vein: The 72 to drive south of Glengonar shaft, by four men, at 120s. per fathom and 5s. per ton; the lode is of a kindly character. The 72 to drive north of shaft, by four men, at 120s. per fathom and 5s. per ton; the lode is yielding good stones of ore, worth 6 cwts. per fathom, and improving. The 60, south of shaft, by four men, at 130s. per fathom and 5s. per ton; the lode is not to value. The pitch in back of the 30, south of shaft, by four men, at 120s. per ton. The 20 to drive north of Wallace's cross-cut, by four men, at 140s. per fathom and 5s. per ton; the lode is worth 7 cwts. per fathom, and improving. The stope below Gripps' adit, north of shaft, by four men, at 85s. per fathom and 20s. per ton, worth 15 cwts. per fathom. Gripps' adit to go north of shaft, by four men, at 160s. per fathom and 5s. per ton, worth 5 cwts. per fathom, and likely to improve. The pitch in back of the said level, south of shaft, by five men, at 120s. per ton. The stope in back of the said level, north of shaft, by four men, at 70s. per fathom and 20s. per ton; the lode is worth 22 cwts. per fathom. A new winze to sink below the said adit, under the above stope, by four men, at 160s. per fm. and 5s. per ton, stent 10 fms. certain. Muir's cross cut to drive west of Brow vein, towards Stavogage vein, by four men, at 200s. per fathom. This cross-cut is now within about 35 to 3 fms. of cutting the said lode.—Katrine Vein: To rise above Gripps' adit, on the above vein, by four men, at 100s. per fathom and 10s. per ton; the lode is worth 15 cwts. per fathom.—Doble's Winze: The pitch in back of Gripps', south of Muir's cross-cut, by two men, at 120s. per ton.—Brown's Vein: The 55 to drive north of Jeffrys' shaft, by four men, at 170s. per fathom and 5s. per ton; the lode is yielding small pieces of ore. The 55 to go south of shaft, by four men, at 180s. per fathom and 5s. por ton; the lode is worth 2 tons per fathom. The stope in back of the 55, north of shaft, by two men, at 100s. per fathom and 10s. per ton, worth 1½ ton per fathom. Brown's winze to sink below the 41, south of shaft, by four men, at 190s. per fathom and 15s. per ton; the lode is worth 2½ tons per fathom. No. 1 stope, in back of said level, south of shaft, by four men, at 65s. per fathom and 20s. per ton: the lode is werth 20 cwts. per fathom. No. 2 stope, south of ditto, by four men, at 65s. per fathom and 20s. per ton, worth 25 cwts. per fm. The 41 to drive north of shaft, by four men, at 200s. per fm. and 5s. per ton; a strong sparry lode, with bits of ore, but not to value. The 10 to drive north, by four men, at 180s. per fathom and 20s. per ton; the lode is worth 25 cwts. per fathom.

Raik Vein, Jeffreys' Cross-cut: Gripp's adit to drive south of cross-cut by four men, at 105s. per fathom, and 5s. per ton; strong lode, but at present not to value. The stope in roof of said level by four men, at 5s. 6d. per fathom, and 10s. per ton; lode worth 20 cwts. per fathom. The winze to sink below Gipp's, north of cross-cut, by four men, at 140s. per fathom, and 10s. per ton. The pitch in back of said level, north of cross cut, by three men, at 120s. per ton. Watson's shaft to sink below surface by six men, at 330s. per fathom; present depth 20½ fathoms. —Raik Vein at Reid's Shaft: Gripp's adit to drive south of shaft by four men, at 140s. per fathom, and 5s. per ton; strong lode, yielding stones of ore. No. 1 stope in back of said level south by four men, at 10s. per ton; lode worth 6 tons per fathom. No. 2 stope, south of ditto, by four men, at 30s. per fathom, and 10s. per ton; worth 2 ton per fathom. The stope in back of the 10, south of No. 3 winze, by four men, at 40s. per fathom, and 6s. per ton; worth 2 tons per fathom. The stope in said level, south of No. 2 winze, by four men, at 30s. per fathom, and 7s. per ton; lode worth on an average 12 tons per fathom. The stope in said level north of No. 2 winze by four men, at 45s. per fathom, and 7s. per ton; lode worth 2 tons per fathom.—Jeffreys' Vein: Gripp's adit to drive west of Reid's shaft by four men, at 120s. per fathom, and 10s. per ton; lode of a kindly character. No. 1 stope in back of said level by four men at 60s. per fathom, and 20s. per ton; worth 25 cwts. per fathom. No. 2 stope, west of ditto, by four men, at 60s. per fathom, and 20s. per ton; worth 22 cwts.—Glene Vein: The adit cross cut west towards the lode by four men, at 60s. per fathom. Good progress is being made in building flues and chimney at the smelting house, and in a short time we shall have 500 yards in length of flue, and a chimney 60 ft. high above the mountain. We have bought a crusher and good portable engine of 18 horse power to go up at Reid's shaft for winding and crushing, and hope to get the same into position before Christmas. We expect the returns for the present month of four weeks to exceed 250 tons.—A. Waters.

THE MINING ATLAS.

By Thomas Spargo, M.E., F.S.A., &c.

(Author of a History of the Mines of Cardiganshire; the Guide to British and Foreign Investment, &c.)

We can have no hesitation in pronouncing this work as one of the most interesting and useful that has for a long time appeared in the scientific world. Mr. Spargo has at great cost produced a perfect Mining Atlas, and we sincerely hope it will prove as profitable as it is complete. The author's object is certainly a very large one: it is to convey accurate and complete information concerning the chief metalliferous districts of Great Britain and America. No one need expect a description of the metallic deposits of the universe, for nobody knows one-tenth, perhaps one-hundredth, part of them. But Mr Spargo has delineated the productive metal regions in the most accessible territories of the Old World and the New. The topographical illustrations are 50 in number. They consist of maps of mining districts and territories, and sections of the most remarkable and productive mines.

The first chapter treats of the mines of the United Kingdom; the introduction is not only lucid and attractive, but it is instructive and original, rising in many passages to a high standard of eloquence. It insists upon the demonstrable fact that the basis of British national production is its resource in metals. In a single page of Mr. Spargo's introduction there is more general information interesting to miners than will be found in many volumes devoted to the same subject: it is in that small compass a mining sketch of the world. We would particularly direct attention to the information given by Mr. Spargo of that triangular territory bounded by India, British Burmah, and China. The remarks on the mineral resources of India are altogether novel and strikingly interesting.

In his introduction Mr. Spargo pertinently and persuasively says—"The author of this work confesses to cherish the desire of identifying his name with a department of usefulness which has been more neglected than any other—that of making known to mining men, capitalists, and the public localities of much mining importance, and their geological and topographical peculiarities in relation to the industry for which they are remarkable." Mr. Spargo is a minute orographist and topographist, as well as a geographical, geological, and mineralogical scholar. No class of persons addicted to the study of such subjects can read his work without pleasure and information. Our ancestors were bad mappers of mining—they have left us in this respect a sad legacy of neglect; and, indeed, it is sorrowful to confess that until Mr. Spargo's courageous, and we are sure we may say successful, attempt this department of literature and science (it is both) had been disgracefully neglected. As Mr. Spargo says, with a tinge of dry and grim humour—"At all events it is proposed by the publication of the Atlas to do something to correct the old way of marching in the dark." We were very much struck with the quiet but caustic remark of the author—"Geological maps to be of real utility must be the result of careful and continued observation. The map of the Geological Survey of the United Kingdom illustrates this; yet it attempts too much, but it is, after all, amazingly useful." Mr. Spargo does not in his Atlas attempt more than he can accomplish, and he has left little, if anything, to desire in this department of scientific research.

The second chapter will be eagerly read by practical miners, especially those who have experience yet to glean. Its object is to show how mines are worked and ought to be worked, and it lays down the law with authority as to how plans and sections are and ought to be framed. Mr. Spargo puts a curious question which, perhaps, some of the wiseheads which read the *Mining Journal* may be able to answer—"What has become of the great stores of the precious metals which enriched the Babylonian, Egyptian, Phœnician, Jewish, Greek, and Roman worlds? There seems to be a mysterious tendency in them to disappear. Of course metals wear out and rust, and some readily, but the precious metals are not exposed to much rough use. The fact, however, that so little of the metals possessed in one age or nation goes down to another was a puzzle of antiquity, and is a puzzle to-day. We must seek them in their birth place." To this end maps such as Mr. Spargo, at immense expense, has given to the world are, in many instances, a *sine qua non*. Mr. Spargo's work furnishes plans and sections of notable Cardiganshire mines, where Sir Hugh Middleton made the fortune by which he created the New River. There are also longitudinal and transverse sections of Botallack, in Cornwall, worked under the sea, where the miners hear the tempest-tost boulders as they roll over the roof of the mine. There are also sections of Dolcoath, one of the deepest mines for superior metals anywhere to be found, and also one of the most famous. There is a longitudinal section of Tresavean, the deepest of Cornish Mines.

The first number of Mr. Spargo's great work, now before us, contains a pretty sketch—historical, descriptive, æsthetic, geological, and mineralogical of the great English Peninsula—Cornwall and Devon. There is a similar description of Cardiganshire and the Isle of Man. There is also a good chapter on the mineral-bearing regions of the American Continent, from the south of Valparaiso to British Columbia, along the ranges of the Andes, the Cordileras, and the Rocky Mountains. There is a little historical parenthesis in reference to the Brazilian Paraguayan war, which is instructive, showing up the ignorance of the diurnal press on mining matters.

We commend the maps of this number for their artistic and orographical neatness.

completeness, accuracy, and general value. How Mr. Spargo could produce such a work at such a price is a puzzle to us, unless he has written altogether *pro bono publico*. If we had a design to write a similar book we should either be very jealous of Mr. Spargo, or give up our intention in an agony of despair, or in an extacy of generosity say, with the old Latin author, "let him who merits bear the palm."

E. H. N.

The Mining Market: Prices of Metals, Ores, &c.

METAL MARKET—LONDON, OCT 19, 1877.

IRON.	£ s. d.	£ s. d.
Pig, GMB, f.o.b., Clyde..	2 12 9-	—
,, Scotch, all No. 1 ...	2 14 6	3 10 0
Bars, Welsh, f.o.b. Wales	5 5 0	5 10 0
,, ,, in London.	5 15 0-	5 17 6
,, Stafford., ,, .	7 0 0-	8 0 0
,, in Tyne or Tees ...	5 10 0	5 15 0
,, Swedish, London ..	9 2 6	9 12 6
Rails, Welsh, at works..	5 0 0-	5 2 6
Railway chairs	— -	—
,, spikes	— -	—
Sheets, Staff., in London	8 15 0-	9 0 0
Plates, ship., in London	7 0 0-	7 5 0
Hoops, Staff.	7 10 0-	8 0 0
Nail rods, Staff. in Lon.	7 0 0-	—
STEEL.		
English, spring	16 0 0-	20 0 0
,, cast	35 0 0-	45 0 0
Swedish, keg............	16 0 0-	—
,, fag. ham.	17 0 0-	—
LEAD.		
English, pig, common	20 0 0	20 2 6
,, ,, L.B. nom.	20 5 0	20 7 6
,, ,, W.B.	20 10 0-	—
,, sheet and bar..	21 0 0-	21 5 0
,, pipe............	21 10 0-	—
,, red	22 5 0-	22 10 0
,, white	27 5 0-	28 0 0
,, patent shot ...	24 10 0-	—
Spanish............	19 15 0-	—
QUICKSILVER.		
Flasks of 75 lbs., ware.	7 15 0-	—
SPELTER.		
Silesian or Rhenish ..	19 5 0	19 7 6
English, Swansea	21 0 0-	—
Sheet zinc	22 10 0-	24 0 0

TIN.	£ s. d.	£ s. d.
English, ingot, f.o.b...	73 0 0-	74 0 0
,, bars ,, ...	74 0 0-	75 0 0
,, refined.........	76 0 0-	—
Australian	68 0 0-	—
Banca	70 0 0-	—
Straits	68 0 0-	68 10 0
COPPER.		
Tough cake and ingot.	70 0 0-	72 0 0
Best selected	72 0 0-	73 0 0
Sheets and sheathing.	76 0 0-	77 0 0
Flat Bottoms	79 0 0-	—
Wallaroo	80 0 0-	—
Burra, or P.C.C.	74 0 0-	74 10 0
Other brands	72 0 0-	73 0 0
Chili bars, g.o.b..nom.	65 10 0-	66 0 0
PHOSPHOR BRONZE.		
Bearing metal	£112 0 0	
Other alloys £120 0 0-	140 0 0	
BRASS.		
Wire	8d.	- —
Tubes............	10	- —
Sheets	9	- —
Yel. met. sheath. & sheets.	6¼	- 7½
Nails composition............	8½	- 9¾
TIN-PLATES.*	per box.	
Charcoal, 1st quality ...	1 0 0	1 1 0
,, 2nd quality ...	0 19 6	1 0 0
Coke, 1st quality	0 18 0-	—
,, 2nd quality	0 17 6-	—
Black ......per ton	16 0 0-	16 10 0
Canada, Staff. or Gla., at Liverpool	11 10 0	12 0 0
Black Taggers, 450 of 14 × 10	30 0 0-	—

* At the works, 1s. to 1s. 6d. per box less for ordinary; 10s. per ton less for Canada; IX 6s. per box more than IC quoted above, and add 6s. for each X. Terne-plates 2s. per box below tin-plates of similar brands.

REMARKS.—A marked silence reigned over our markets at the opening of the week, as though some dire calamity was about to befall us, and it was rendered all the more impressive coming so closely upon the recent excitement in tin. A striking contrast rarely fails to produce an effect, and as on this occasion the feeling of reserve was so great on Monday that it actually caused a temporary cessation of business; and such was the universal interest taken in the French elections that no relief was afforded our markets until the result of the balloting was announced. It appears, however, that neither Republicans or Monarchists can claim the victory they predicted, so that the struggle for supremacy has yet to be fought out, and this will probably not take place until the Assembly meets in the early part of November; but let us hope that the President in the meantime will succeed in forming a coalition Ministry that will ensure the confidence and respect of the nation. The orderly manner in which the elections passed off reflects great credit on the voters, and now that the country is making fair progress it would, indeed, be a grevious misfortune should any political disturbances arise to affect the good order and happiness that prevails; we trust, therefore, that the different factions will display the utmost moderation towards one another, and work harmoniously together to the increase of wealth, and power, and glory of France. A pause in business at this particular time of the year is rather awkward, as the season is fast advancing into the winter quarter, and any loss of time, however slight, cannot easily be recovered; but as orders are unusually limited this autumn, the trade will not suffer much inconvenience, providing no further interruptions occur. The greatest inconvenience is a deal more likely to proceed from slackness of demand than from any other cause, for it is pretty evident now that there will be no general resuscitation this year.

On Tuesday things generally looked a little brighter; and, as there were no further abstractions of bullion from the Bank, our market began to assume its ordinary aspect, and more disposition was evinced on the part of buyers and sellers to renew transactions, but there is nothing to inspire confidence yet, and we shall have to wait a long while for a return to prosperous times if the views expressed in last Wednesday's Daily Telegraph are correct, for it is therein stated that the average interval of stagnation after a commercial panic is known to last about four years, and there are reasonable grounds for believing that in less than two years from the present time an opportunity will occur to manufacturers and merchants to recruit their resources depleted through protracted depression. We cannot very well be accused of misleading the trade by any over-sanguine expectations regarding the immediate future, as we have often stated that we thought it would take the whole of the present year before any real and lasting recovery could take place; but we confess that we were unprepared to hear that nearly another two years were necessary to restore trade to its normal state. We fear the conquences will be disastrous if this should be the case, for it will be impossible for many houses to hold out all that length of time, and they will be exhausted and crushed long before then in a commercial crisis; but if a fair improvement is obtained during the ensuing year they may be able to retain their respective positions. But is is quite clear that our foreign trade cannot make much progress, and our exports to America and the Continent will diminish if Protectionist principles are going to be generally adopted and adhered to. The Chancellor of the Exchequer, in taking notice of this difficulty, describes it as the "war of tariffs;" and not only as being of a very unsatisfactory but even disastrous character; and there cannot be any doubt about it, for it is a matter of vast importance, and the Chancellor evidently considers it will influence the revenue of the State; we may be sure, therefore, that it will also influence the incomes of the mercantile community. All this proves how great is the necessity for keeping prices down, for it is only by cheap prices that we can expect to supply the foreign markets, and all our efforts ought to to be directed to the accomplishment of this object. As long as we can manufacture cheaper than other nations we need not be concerned about the future trade of England; but if we do not keep pace with all modern appliances and inventions, and allow ourselves to get behind other countries in these matters, we shall soon lose the whole of the foreign trade, and the colonial trade will go with it. Even our home trade will suffer, and many orders for iron are already carried off by the Belgians, and it is high time our manufacturers were up and stirring, or else they will lose all hold of the buyers; and, of course, if they go from us the decline will be rapid.

It is very easy to lose a connection, but rather difficult at times to form one, and if brands are once lost sight of and the quality is forgotten, it is often a slow and expensive proceeding to re-establish the reputation. We believe we are not advancing in our manufactures to the same extent as some other countries, and owing to the slackness of trade and the unremunerative character of business sellers do not follow up the most recent improvements so closely as they ought to do, and the consequence is that we lose a considerable amount of business on that account. The Americans excel us in tools; they are not only lighter and better finished, but cheaper than can be produced in Birmingham, and it also appears that the Turks have been able to get supplied with firearms cheaper from America than from here. The loss of the ordinary merchant trade has, therefore, not been made good, as many supposed it would be, by an extraordinary demand for war purposes, and the prospects are still gloomy and discouraging, for the war destroys confidence and commerce. The stocks of metals are large and accumulating, and the cost of holding has increased. The protective tariffs are excluding us from the foreign markets. The effects of the Indian famine are not yet overcome. The crops of our own land have proved deficient, and money must be sent to America in exchange for corn. The winter is approaching, and provisions and money will be scarce and enhanced. The war is exhausting the resources of Russia and Turkey, and it will take many years for both countries to repair the damage and recover their losses. The markets abroad are all well supplied, and there is no room for speculation. Great caution is necessary in regard to purchasing and giving credit. No risks of a doubtful character should be taken, or contracts entered into extending over any lengthened period, without good deposits. This is not the time for extraordinary operations, and it would be better to confine transactions to absolute requirements, and not to indulge in any speculation, those who do will assuredly lose their money.

COPPER.—At the Swansea Ticketings, last Tuesday, copper ores realised 11s. per unit for 6⅝ per cent. of produce. This is the lowest price reached for very many years, and the smelters have at last succeeded in buying cheaply, so that it ought to enable them to recoup some of their former losses, and at the same time to sell manufactured at a good profit even below present quotations, which it is said they can very well afford to do, for they are undoubtedly great gainers by the reduced price of ores, but they must not expect to retain all the advantage, otherwise it will make buyers dissatisfied, and for their own sakes they should secure the orders now offering, and risk what may follow, as they have good supplies of the raw material to fall back upon, and they can go on replenishing their stocks as they effect sales; the principal difficulty, however, is to get the orders for English as they are very scarce, and without some further inducement buyers will not come forward. Chili bars have been quiet, and but little doing in them, for buyers consider the price much too high in comparison with ores, and they will have to come down before any large quantity can be sold, and whatever holders are retaining their stocks for it is difficult to imagine. Smelters will certainly be buying very sparingly at present rates, and there is not sufficient in the outside demand to support them, and their decline is only a question of time. The stocks in Swansea and Liverpool amount to 17,908 tons, against 14,544 tons in 1876; and in Havre the present stock is 7570 tons, against 6855 tons in 1876. The stock of foreign copper in London is 4252 tons, against 3682 tons in 1876. The total increase together for this year being 4647 tons, representing an excess in value of at least 300,000*l*. The reduced prices of copper do not affect imports, for the quantity imported this year considerably exceeds those of 1875 and 1876, the estimate of all kinds being 68,119 tons for 1877, 58,578 tons for 1876, and 59,623 tons for 1875, the principal increase being in ores and pyrites; but the exports do not keep pace with the imports, for there is only about 1000 tons more in 1877, compared with the two previous years, the figures being 39,718 tons for 1877, 38,815 tons for 1876, and 38,377 tons for 1875. The increased supply of ores and pyrities enables the smelters in great measure to dispense with Chili bars; holders, therefore, cannot any longer reckon upon them as being such important buyers as formerly, unless they are willing to sell their bars as favourably as smelters can buy ores. The great increase in the stock of Chili, both in France and England, is also another reason for expecting lower rates. The charters for the first half of October are telegraphed as 1600 tons, and the price is reduced nearly 3*l*. per ton in Valparaiso. This announcement will probably hasten the decline, as importers are now enabled to replace their copper if they wish to do so by forward arrivals. By the mail from New York on the 3rd inst. it is reported that manufactured copper and yellow metal continue in steady moderate request at unchanged prices. Sheathing being quoted 28 c., and bolts and braziers 30 c. Yellow metal sheathing, 20 c.; yellow metal bolts, 25 c.: and nails, 20 c., net. The demand for ingot is said to have become light, and the market is not as firm as before; sales have been made of 200,000 to 250,000 lbs. Lake at 18¼ c. to 18 c., closing at the latter price. The advices from India will not admit of the execution of orders for braziers' copper abover 75*l*.; yellow metal, 6½ to 6⅝.

IRON.—There are no symptoms of improvement, either in demand or price, and our market continues in an extremely languid and unsatisfactory condition. Scotch pig have receded in price, and m.n. are now quoted at 52s. 9d. cash.

SHIPMENTS.

Week ending Oct. 14, 1876 —	Tons	11,049
Week ending Oct. 13, 1877		9,455
Decrease		1,594
Total decrease for 1877		1,580

Imports of Middlesborough pig iron into Grangemouth:—

Week ending Oct. 13, 1877	Tons	6,230
Week ending Oct. 14, 1876		3,240
Increase		2,990
Total increase for 1877		59,243

FURNACES.

In blast Oct. 14, 1876	1·6
In blast Oct 13, 1877	87

The value of money generally affects the position of iron more, perhaps, than any other metal, and 5 per cent. is quite sufficient to check the demand, and buyers will doubtless continue to buy very sparingly while the least fear exists of dear money. Prices generally show very little variation, but the tendency is not towards firmness, and there is an excessive competition on the part of the works to secure any really good specifications. It is in such times like the present that buyers, knowing the eagerness of the works to secure orders, often tempt them with a good specification, and prevail upon them to take bills in payment; and, having once got the thin edge of the wedge in, keep on driving it until the amount reaches a heavy liability, but as soon as a little stringency in the money market takes place sellers begin to tremble for their safety, and almost wish they had not been so extremely venturesome.

The system of selling against merchants' acceptances is likely to involve manufacturers in difficulties, and there is no longer any necessity for it as formerly. The banks afford all necessary facilities, and payment within 14 days ought to be strictly adhered to. Money at 5 per cent. is not a serious rate, and it is only in the event of a further sharp advance that any particular pressure might be experienced; sellers, however, cannot be too careful and guarded in giving credit in times of adversity like the present. There has been but little profit attached to business for a long time past, and many merchants must be heavy losers upon produce and general merchandise, and the position of the mercantile community cannot be considered altogether satisfactory. Those merchants who have not realised are encumbered with stocks; and with present prospects their position is, perhaps, worse than those who have already made their loss. The utmost caution, therefore, ought to be observed in all transactions, and nothing but cash business entertained. Of course, we are alluding to the shipping business only, the home trade could not be carried on without some little extension of credit; but then, there is a better opportunity for ascertaining the nature of a buyer's business, and how far he can be trusted. The profits in the iron trade are said to be small, and sometimes even none at all; under these circumstances, sellers cannot afford to take risks, they had, in fact, better be without orders for a time if they cannot be procured upon the regular cash terms. Dangers must not be increased when the reserve fund is low, or there will be nothing to meet a loss if one should be made. There appears to be a very fair demand for galvanising sheets, but for general business the demand is slack in many districts. The least unfavourable accounts that have been received from any part of England are those from Barrow-in-Furness; but they are now beginning to suffer like their neighbours, and the last report or two shows a quiet tone to prevail there, and it is stated that the makers have not been receiving so much business as previously represented, and that the out-look is not nearly so favourable as it appeared a short time ago, and some of the makers, rather than allow stocks to accumulate, have accepted lower prices. It would be a good thing if many other sellers were to follow their example, and thus prevent the accumulation of stocks.

LEAD.—The market keeps fairly steady, but the demand is quiet.

QUICKSILVER.—There is little to report in this metal, the price having remained at 7*l*. 15s. all the week, with only small sales. California is likewise unchanged at 45 c.

TIN-PLATES.—Orders are falling off here, and sellers are not indisposed to make a trifling concession.

STEEL.—German keg and faggot is in fair request, but English keeps very dull. In Sheffield the trade is represented as duller than ever, and that nearly half the cast-steel furnaces are lighted.

TIN.—A moderate amount of business has been transacted, and considering the recent advance prices have been exceedingly well maintained. Straits and Australian have both ruled about 68*l*. per ton, and English 73*l*. The Australian supplies are now far in excess of all other kinds, but the abundancy of supply in no way injures their relative value, and we are rather of opinion that as the supplies of Straits fall off Australian will come more into favour, and not unlikely in course of time will be preferred, for consumers do not care to be constantly changing from one kind of tin to another, and if they find there is difficulty in obtaining the one whereas they can always reckon upon the other, and as there is no appreciable intrinsic difference, they will probably confine their orders to Australian only, even now the difference made in price is generally so slight that they might very well be included together under one quotation. It is a great mistake on the part of the regular dealers in Straits to attempt to create a scarcity, as that invariably tends to permanently injure its value. Manouvres of that kind with the object of producing an effect upon the price are, to say the least, very dangerous, and ought not to be practised. It does not come within the province of an importer to interfere with the due course of the market, his business is to go with the market, and meet the wants of consumers; he may actually know that the price is purposely depressed or fictitiously upheld by speculators, yet it is no affair of his to try and frustrate the other's design, for if he once enters the lists for that purpose he descends immediately to the level of a mere speculator. The deliveries for the first half of October are said to be satisfactory, and although the arrivals have been unusually large, yet it is expected that the statistics at the end of the month will bear comparison with former issues. The latest telegraphic advices from Melbourne show an increase in shipments over the two previous returns, and we think sellers should be very well satisfied if they can continue to realise the present price; it would be foolish of them to buy for anything more.

Messrs. HARRINGTON, HOBAN, and Co. (Liverpool).—Arrivals here during the fortnight of West Coast, S. A., produce:—Aconcagua, from Valparaiso, 760 tons bars, 110 tons ingots. At Swansea, Atacama, from Pan de Azucar, 773 tons ores. Stocks of copper (Chilian and Bolivian) in first and second hands, likely to be available, we estimate at—

	Ores.	Regulus.	Bars.	Ingots.	Barilla.
Liverpool	1223	2084	11,849	50	—
Swansea	2754	4700	2,154	—	10
Total	3977	6784	14,003	50	10

Representing about 17,908 tons fine copper, against 18,827 tons Sept 29; 14,546 tons Oct. 15, 1876; 12,510 tons Oct. 15, 1875; 14,200 tons Oct. 15, 1874. Stock of Chili copper in Havre, 7570 tons fine, against 6855 tons Oct. 15, 1876; stock of Chili copper afloat and chartered for to date, 8800 tons fine, against 11,000 tons Oct. 15, 1876; stock of foreign copper in London, chiefly Australian, 4252 tons fine, against 3682 tons Oct. 15, 1876. According to the Board of Trade Returns the total imports and exports into and from this country for the following years were—

IMPORTS—First nine months.	1875—tons.	1876—tons.	1877—tons.
Copper in ores	6,085	8,325	12,315
Ditto, regulus	11,420	10,269	11,622
Ditto, bars, cakes, and ingots	31,420	29,330	30,520
In pyrites (estimated)	10,698	10,654	13,662
Total imports	59,623	58,578	68,119
EXPORTS—First nine months.			
English copper, wrought & unwrought	16,763	16,836	16,106
Foreign copper, unwrought	11,196	12,774	10,631
Yellow metal	10,418	9,205	12,981
Total exports	38,377	38,815	39,718

THE IRON TRADE—(Griffiths's Weekly Report).—Friday Evening. Perhaps the most noticeable feature in the iron trade is weakness in g.m.b. Scotch pig-iron. The market has continued to droop throughout the week. On Monday the price receded from 53s. 1d. to 52s. 10½d., at which price the market closed. On Tuesday the price at the morning market was 52s. 9d., at which a little business was done, and at the close of the afternoon there was no change in price. On Wednesday some speculative business was done at an advance in price; but warrants for cash were offering at the close at 52s. 9d., and yesterday there were sellers at 52s. 8d. at the close. To-day a fair amount of business has been done at 52s. 8d., and at the close this was the price of warrants—a fall since last Friday of 5d. per ton. We quote makers' No. 1 iron: Gartsherrie, 60s. 6d.; Coltness, 66s. 6d.; Calder, 61s. 6d.; Langloan, 62s. 6d.; Summerlee, 59s.; Monkland, 54s. 6d., f.o.b. Glasgow; Glengarnock, 59s.; Eglinton, 54s. 6d., f.o.b. Ardrossan; Shotts, 62s. 6d., f.o.b. Leith; Kenniel, 56s., f.o.b. Bo'ness. The market at Barrow on Monday was quiet. Large orders for hematites were booked by the West Coast smelters at Birmingham last week, and they seem not at all anxious to sell very far forward. At Middlesborough on Tuesday the market was decidedly weaker for the raw material, and no doubt, partly in sympathy with Glasgow, prices were easier for all numbers. At Wolverhampton on Wednesday, and Birmingham yesterday, the markets were firm for pigs and manufactured iron. The leading makers find things no worse, and in some instances report an improvement in their trade. The sheetmakers are fairly active, and orders for hoops and rods for the Colonial markets and China are still being given out. The Di[rector-]General of Stores for India invites tenders by the 29th inst for the sup[ply of] 10,900 tons of iron, or 11,200 tons of steel rails, with accessories, for the [...] State railways.

The MINING SHARE MARKET has been moderately active [this] week, but there has not been so much general business doing a[s we] had to report upon in our last.

The mines dealt in have included Rookhope, Parys Mountain, [...]kerville, Ladywell, North Laxey, Leadhills, East Van, Great L[...] Glenroy, Wheal Grenville, Roman Gravels, West Tolgus, Penstru[thal], Prince of Wales, and a few others.

In TIN MINES, since the first rise in the tin standards ab[out a] month ago, it is calculated that ten of the principal mines have [...] in market value close upon 200,000*l*. No further advance has t[aken] place in the standards since our last, but as the smelters are s[aid to] be buying tin at 2*l*. above the standard a further rise will prob[ably] take place soon. Dolcoath are quoted 35 to 37; Carn Brea, 37 t[o ...] Tincroft, 15 to 16; South Condurrow, 8 to 8½; Cook's Kitchen, 1[...] East Lovell, 1 to 1½; South Frances, 2 to 2½; West Basset, [...] 2. Phœnix, 4¼ to 5; at the meeting the costs was charged [...] June 23 only, and amounted to 13,637*l*. for five months. T[...] to meeting 10,805*l*., showing a loss of 2332*l*., and a call of 2s. 6[d. per] share (1500*l*.) was made. West Frances 4 to 4½; West Godo[lphin] 2 to 2½; Wheal Agar, 3¾ to 4¼; Wheal Basset, 11 to 13; W[...] Grenville, 3 to 3½; Wheal Jane, 1⅜ to 1⅝; Wheal Kitty (St. A[gnes]) 1¾ to 2¼; Wheal Peevor, 5 to 6; Wheal Uny, ¾ to 1. In The L[...] the lode in the shaft is valued at 4 tons of tin per fathom, [...] last parcel sold at 42*l*. per ton.

COPPER MINES.—At the weekly Ticketing in Cornwall on T[hurs]day the copper standard remained stationary. The ore sold re[...] 2924 tons, and the average price 3*l*. 1s. per ton. Devon C[...] to 3½; the sale of ore here on Thursday, 877 tons, realised 1963*l*. [...] No change at the mine. West Tolgus have been firm, at 75 t[o ...] at the meeting next week a dividend of 1*l* 10s per share is exp[ected]. Wheal Crebor, 1½ to 2; the sale of ore on Thursday realised [...] East Caradon, ¾ to 1. Hingston Down, ⅛ to ¼; the sale [...] realised 286*l*. 14s. Parys Mountain have been in good demand, [and] a large business done, the price leaving off 12s. 6d. to 15s. W[e un]derstand the necessary Morfa Du shares have now been subsc[ribed] for, and that in a few days all arrangements will be complete. P[rince] of Wales, 5s. to 7s. 6d.; a small sale of copper, 78*l*., was ma[de on] Thursday; no change in the silver lode. West Seton, 20 to 2[...]

Marke Valley, ⅝ to ⅞; the accounts at the meeting showed [...] for the quarter, 3707*l*.; copper ores sold, 3375*l*., and after cre[...] calls the balance in hand was 597*l*. The ores on Thursday (30[...] realised 1063*l*. The agents state that the fall in copper has m[ade a] difference of 700*l*. in their returns since July. The prospects [of the] mine, however, continue very encouraging. There is a good l[ode at] the bottom level, and the shallower workings are opening ou[t pro]fitable ground. Tolgus Consols, 5 to 5½. At North Treskerby [a call] of 10s. per share was made.

LEAD MINES have been in pretty fair request, particularly [Rook]hope, Leadhills, and a few others. Roman Gravels, 8¼ to 8[...] sampling (for sale next week) is 175 tons of lead and 25 t[ons of] blende. No material change in the mine since last week. [...] well, 20s. to 22s. 6d.; the sampling here is 20 tons of lead. [...] fair request, at 30 to 32; the lead ore (500 tons) realised 12*l*. 18[s.] per ton, or 6467*l*. 10s.; blende (150 tons), 410*l*. 12s. 6d., or 2*l*. 1[...] per ton. We understand the next month's sale is likely to be [...] The present is an advance in price upon the last.

Great Laxey, 20 to 21; Glenroy, 15s. to 20s.; North Laxey, [...] 14s; the 121 stope continues to look well in depth, and going [...] is worth 2 tons per fathom. The stope in the sole of the 60 is [...] 15 cwts. per fathom. The new stope, in the sole of the 60, is [...] fully 1 ton per fathom. South Roman Gravels, 10s to 15s. ([...] paid). The 45 east is now in a very strong, spar lode, spotted [with] lead and blende. The 45 west has, during the past week, the [...] states, produced some good stones of lead. Both ends look [...] for ore ere long. Tankerville, 5 to 5½; the 100 tons of lead o[re ...] at 12*l*. 10s. per ton; an improvement on last month's [...] West Tankerville, 15s. to 20s.; Aberdaunant, ⅛ to ¼; Ash[...] to 1¼. East Van shares have improved to 3¼, 3½; there are [...] be spots of lead in the shaft. Leadhills, 5 to 5¼; the sampl[ing for] the month will be 250 tons of lead ore. Herodsfoot, 6 to 6½; [...] Dyliffe, 1¾ to 2¼; Llanrwst, 2½ to 3; Gorsedd and Merllyn [...] 5¾ to 6¼; the sampling in November is expected to be 50 [...] Great Holway, 5 to 6; Pateley Bridge, 2 to 2½; West Pat[eley ...] to 2¼; Minera, 18 to 20; Pennant, 5 to 5½. Rookhope shar[es have] been in good demand, at 20s. to 22s. 6d. St. Patrick, 15s. [...] West Assheton, ¾ to 1. West Chiverton, 14 to 16; the lode [at ...] ters's shaft, sinking below the 100, is large, and producing [occa]sional stones of lead. The north lode has been cut in th[e ...] west of cross-cut, and producing both lead and blende, wo[rth ...] per fathom. Caron, 2½ to 3; Grogwinion, 2½ to 3½; Red R[...] 2½; South Cwmystwith, 3 to 3½; St. Harmon, 2¾ to 3¼; Wye [Valley] 2 to 3; West Wye Valley, 2 to 3; West Goginan, ⅛ to ⅜.

Among FOREIGN MINES Argentine are quoted at 2½ to 3[...] Tent, 3 to 3½; Condes, 2½ to 3; Hultafall, 5½ to 6; Chontales [...] 8s.; Eberhard and Aurora, 4¾ to 5¼; Exchequer, ¼ to ⅜; Fl[...] 2 to 2¼; Frontino and Bolivia, 2½ to 3½; Javali, 6s. to 8s. [...] Barbara advices show a profit on the month of August of 374*l*. [...] The gold produced realised 1442*l*. 6s. 6d. The lode opera[ted on] during August had shown a small improvement in its pro[duce and] quality. New Zealand Kapanga, 1⅜ to 1⅝; Last Chance, [...] New Quebrada, 1¾ to 2; Port Phillip, 9s. to 11s.; Richmond [...] 6¼; Tecoma, 2s. 6d. to 7s. 6d.

The Market for Mine Shares on the Stock Exchange has no[t main]tained the improved tone noticed in the reports of the pa[st fort]night; the number of transactions has been very small, a[nd the] prices realised have been in nearly every case lower. Thi[s is ac]counted for by the fact that the business is almost entirely c[onfined] to speculation among the dealers themselves, the public [giving] scarcely any support to the market. The only feature of no[te to] which reference can be made is the introduction of a proj[ect for] working a gold mine claim in the Transvaal—the Blue Ban[k] Reef—upon a principle not familiar to the London market, a[nd] not without merit. The property is about two days' ride fr[om Pre]toria, the capital, in the direction of Potchefstroom, and c[onsists of] seven claims, covering 1050 feet on the run of the reef, by 2[...] wide, and is, therefore, equal to about five acres. One-ha[lf] of this is offered for 3000*l*. cash down, and a contingent liab[ility to] subscribe another 3000*l*. should increased plant and machi[nery be] necessary. Until the whole 6000*l*. is paid up the subscribe[rs have] no voice in the management, nor are they recognised as co-p[...] and the management is vested in Mr. G. P. Moodie, of Pretori[a, from] whom three-monthly accounts, &c., are promised. The p[roperty] has been inspected and favourably reported upon by Capt. [...] and the assays by Messrs. Johnson, Matthey, and Co, and J[...] and Sons are encouraging. Selected specimens of the quar[tz,] showing visible gold, have been reported by Messrs. Johnso[n, Mat]they, and Co. to yield 7 ozs. 12 dwts. of gold per ton, wh[ile a] portion in bulk, classified by them into five qualities, yield[ed from] traces only up to 1 oz. 3 dwts. per ton. A sample of 35 lbs. [assayed] by Messrs. Johnson and Sons gave 1 oz. 12 grs. per ton, and [a] sample of 55 lbs. 1 oz. 7 dwts. 12 grs. per ton. The subscr[iptions] are to be in sums of not less than 250*l*., half in cash prompt, [and by] way of security each subscriber of 250*l*. is to have one-tw[elfth in]terest in a farm of 6000 acres at Lydenberg (which at the [...] value of farms in that district—about 5s. an acre—would b[e ...] 1500*l*.) representing a guarantee of from 100*l*. to 125*l*., and [...] risk to 100*l*. or 150*l*. per twelfth. It is stated that 1700*l*. has [...] been expended in the development of the reef, and that from [...] surveys by competent authorities a very large return may [be ex]pected.

During the week some 100*l*. Seven per Cent. First Mortgag[e ...] of the Anglo-Virginian Freehold Land Company have been [...] in the market, but no transactions are reported. It appe[ars ...] the issue was authorised some three years since, but none ha[ve been] placed, and that they are now to be introduced with the corr[espond]ing number of coupons detached. The property is said to [...]

[valu]able mineral deposits—coal, iron, &c.—but buyers naturally [wish], before doing business, to see the full prospectus advertised [in] this country, and also to learn full particulars as to the position [and] standing of the company in Virginia, the amount of work done [at] the mines, and so on. When this information is forthcoming, [the]re may be less difficulty in dealing with the bonds.

New Zealand Kapanga, 1⅜ to 1⅝; particulars of the special meet[ing] will be found in another column. An interesting letter from a [hig]h official in Auckland was read to the shareholders, giving a [sat]isfactory account of the property. It fully confirms the state[me]nts heretofore made as to the richness of the property. The [me]eting was unanimous in resolving to raise fresh capital, and in [ple]dging itself to take up the shares at the proper time.

St. John del Rey, 325 to 335; the latest telegram received gives [th]e produce for the first division (eight days) of October at 9000 oits., [of] the value of 3487*l*., the ley of the ore being 7·8 oits. per ton. All [is] going on well. The advices to hand show that provisions con[tin]ue scarce, and consequently the exceptionally high prices still [prev]ail. No increase or cheaper supply can be looked for until the [nex]t crops, about February and May next. The health of the esta[bli]shment is favourable, considering the season of the year, which [has] been very trying, the average number of patients (mostly bron[chi]al complaints) being larger than usual. Referring to the ley of [the] ore (7·932 oits. per ton) for the first division of September it is [rem]arked that the produce, though lower than some of the preced[ing] divisions, is favourable. A large amount of poor mixed lode [and] killas, though of fair produce, has been treated with the general [su]pply of mineral. Measures are being taken to bring about a more [per]fect separation of the ore. A tramway has been laid the entire [len]gth of the floors, which will greatly facilitate the removal of in[fe]rior and rejected killas. In the reduction department concentrat[ing] experiments are being daily made as to the possibility of a [bet]ter separation of the gold contents. The Mexican arrastre has [bee]n kept working steadily with the view of ascertaining the col[lect]ing properties of copper amalgam. The excavation for the new [pu]mps is nearly completed. Don Pedro North del Rey, ⅜ to ⅝; the [rep]ort for August, received on Monday, gives the produce for the [mo]nth, from 1649 tons of ore, as 5279 oitavas, of the value of [...]1*l*. 11s. 6d.; whilst the costs were, including 299*l*. for the erection [of] permanent pumping machinery, 2493*l*. 15s. 2d. It is explained [tha]t the cost exceeds that for the previous month, principally owing [to] heavy travelling expenses incurred, and the rate of exchange being [hig]her. There is no new feature in the mine calling for special re[mar]k; the stopes throughout continue to yield moderate quantities [o]f ore of middling quality.

Almada and Tirito, ⅛ to ¼; the directors have to-day received a [let]ter from Mr. Beach dated Sept. 13, from which it appears that [the]re was a loss for the month of August of $3000, instead of a profit [of] that amount, as already announced. The last report from the [min]e states that in Tirito the ore they have now been working on [un]der the 10 in the south has now given out, as was to be expected, [as] it was but a branch from the lode carried out of the course of ore [by] the dislocation. They are now getting a little ore from the winze [in] the tunnel sunk on what has been termed the first vein or branch [lo]de cut in the tunnel; of course it is but little, and they have no [exp]ectation of its leading to more, as on the level of the tunnel and [ab]ove it has been very well proved. This is now the only docile ore [tha]t remains until they can free the mine from water. Argentine, [2¾] to 3; the latest accounts from the mines are considered to con[firm] the statements previously made as to the richness of gold de[posi]ts which are only waiting reduction. Condes, 2½ to 3; the report [is o]f a satisfactory character. The lode in one place produces 8 tons [of r]ich ore to the fathom. Regular shipments are already coming [for]ward, and the prospects for the new season are considered fa[vou]rable.

Richmond, 5¾ to 6¼; the usual telegram from the mine gives the [wee]k's run at $55,000 from 700 tons of ore with two furnaces. [Du]ring the week the refinery produced $30 000. The manager's re[por]t states that the stope in the back of the 400 has much im[prov]ed; it is widening and lengthening, and the ore is of good [qua]lity. The ground in the 200 is softer. They expect to strike [ore] in this drift shortly, and then sink to communicate with the [ore] in the back of the 400. The 600 is without change. A local [aut]hority writes a few days later than the manager's report that [the] company have within the past week made some very import[ant] developments in their mine at Ruby Hill, and the ore bodies [enc]ountered are of sufficient extent to ensure uninterrupted opera[tion]s at the furnace for months to come. The discovery was made [in] the western portion of the fifth level, in a drift that had been [run] for air connection some time ago, and that section of the mine [has] up to a recent date been overlooked. Since the decision pro[spec]ting has been carried forward with great vigour, and with the [res]ults above stated. Some of the ore extracted is so rich that it is [sor]ted at the mine to save the waste of transportation, and the [who]le body as far as explored is of a very high grade and carries a [goo]d percentage of lead. The developments will be noted with [grea]t satisfaction, and is an evidence that well-directed explora[tion] on Ruby Hill is all that is needed to uncover the riches that [lie] latent in that great ore channel.

Flagstaff, 2 to 2¼; it is stated that private advices have been re[ceiv]ed to the effect that the shipments of ore are rapidly increasing, [sa]les for September being about $42,000. It is estimated that [it] should net for the month's run, approximately $22,500, equal [...]00. The new tramway is completed, and is proving a great [sav]ing to the company. It is also remarked, which may be of some [inter]est the shareholders, that Mr. Hunter has taken final leave of [...], and is now on his way to England, all claims by him against [the c]ompany having been fully discharged. Hunter Consolidated, [...]6¼; a telegram received a fortnight since, dated Oct. 6, says: "[Fur]nace run seven days, produced $5000." A second telegram, [rece]ived on Monday, gives the return for the week's smelting at [...]0. Exchequer, ⅛ to ¼; it is suggested in some quarters that the [ant]icipated value has been much exaggerated, and that the imme[diate] future as to the capital and the present actual value of the [mine] is much more encouraging than hitherto indicated. The fol[lowin]g telegram has been received: "Flavilla improving, 40 ft. run [in le]vel, or drift, since last report. The present average width of [the] present workings is 2 ft. Extracting ½ ton to man daily. [Imme]diate adjustment fully warranted, and would save heavy costs. [Tele]grams received." I.X.L., ⅛ to ¼; the report states that some [ore] has been taken from the upper tunnel, assaying $100 per ton. [The s]haft has been re-timbered, and the sump at the 300 completed; [sinki]ng has been resumed.

[Hu]ltafall, 5½ to 6; the latest accounts from the mines are that [the lo]de in the bottom of the shaft is richer than ever. A sample [lat]ely assayed produced 47 per cent. of lead and 31 ozs. of silver. [A lar]ge consignment of machinery for the dressing-floors and a [stea]m-engine for the mines are leaving Hull by steamer to-day, and [it is e]xpected that the remainder will follow next week. The re[port] of the statutory meeting will be found in another column. [Lea]d Mines have been dealt in to a moderate extent, and quota[tion]s fairly maintained. Van, 29 to 31; the 500 tons of lead ore [sold] realised 6467*l*. 10s., or 12*l*. 18s. 9d. per ton; and the blende [real]ised 410*l*. 12s. 6d., or 2*l*. 14s. 9d. per ton. The next sale will, it [is sai]d, be larger.

[Gro]gwinion, 2½ to 3½; the drivings on No. 4 lode continue to [open] out well. Wye Valley, 2 to 3; the prospects continue much [the s]ame as reported last week at the annual meeting. West Wye [Valle]y, 2 to 3; the dressing machinery is nearly completed, and [the d]iscovery in Brooke's shaft still looks well to the west, but not [so pro]mising to the east; other points in the mine unchanged. [...], 2½ to 3; the bottom level has much improved, and is showing [a goo]d branch of lead, better than seen before at any point above. [A ne]w shaft has been commenced, and is making good progress, [and w]ill not take long to communicate to the bottom of the mine. [Red] Rock, 2 to 2½; the dressing of lead has commenced, and a [parcel] will soon be ready for the market. The prospects of further [impo]rtant discoveries in the mine have considerably improved, par[ticula]rly in the eastern ground, where the lode is now the most pro[ducti]ve. Saint Harmon, 2¾ to 3¼; satisfactory progress continues [to be] made, and a nice lot of lead is now being dressed for market.

The cross-cut towards the south lodes is looking very promising for further discoveries. South Cwmystwith, 2½ to 3½; several large shareholders have this week visited the mine, and expressed themselves pleased with its appearance.

Pateley Bridge, 2¼ to 2½; the Rake vein, in the 30 east, is now carrying a fine course of ore, worth 2 tons per fathom. In the same level west the vein is presenting every indication of a speedy improvement. Fielding's vein, in the 20 north-west, and Lumb vein, in the 20 west, are each worth 1 ton of lead ore per fathom. Smelting is progressing steadily. West Pateley, 1¾ to 2¼; these shares continue to be dealt in, and the prospects are considered good.

Subjoined are the closing quotations:—

Assheton, ¾ to 1¼; Carn Brea, 36 to 38; Devon Great Consols, 3 to 3¼; Dolcoath, 34 to 36; East Caradon, ¾ to 1; East Van, 3 to 3½; Glenroy, ¾ to 1; Glyn, ⅛ to ⅜; Great Laxey, 20½ to 21¼; Hingston Down, ⅛ to ⅜; Leadhills, 4¾ to 5¼; Marke Valley, ⅝ to ⅞; Parys Mountain, ⅝ to ¾; Pateley Bridge, 1¾ to 2¼; Penstruthal, ¼ to ½; Roman Gravels, 8 to 8½; Tankerville, 5 to 5¼; Van, 29¼ to 30¼; Van Consols, ¼ to ½; West Assheton, ½ to ¾; West Chiverton, 14 to 16; West Pateley, 1¾ to 2¼; West Tankerville, ¾ to 1; Wheal Grenville, 2¾ to 3¼; Almada and Tirito, 3 16ths to 5-16ths; Argentine, 2½ to 3; Birdseye Creek, ⅛ to ⅝; Blue Tent, 3 to 3¼; Cape Copper, 35 to 37; Cedar Creek, ⅜ to ⅝; Chontales, ¼ to ⅜; Colorado Terrible, 1½ to 2; Condes of Chili, 2½ to 3; Don Pedro, ⅜ to ½; Eberhardt and Aurora, 4½ to 5; Exchequer, ¼ to ½; I X.L., ⅛ to ¼; Emma, ⅛ to ⅜; Flagstaff, 2 to 2¼; Frontino and Bolivia, 3 to 3¼; Hultafall, 5½ to 6; Javali, ¼ to ½; Kapanga, 1⅜ to 1⅝; Last Chance, ¾ to 1; New Pacific, ⅛ to ⅜; New Quebrada, 2 to 2¼; Pestarena, ⅛ to ⅜; Plumas Eureka, 2¾ to 3¼; Port Phillip, ⅜ to ½, ex div.; Richmond Consolidated, 6⅛ to 6⅜; St. John del Rey, 325 to 335; San Pedro, ⅛ to ⅜; Sierra Buttes, 1½ to 1¾; South Aurora, ⅛ to ¼; Tecoma, ¼ to ⅜; United Mexican, 1½ to 2; Oregan pref., 4 to 4¼.

COLLIERIES.—During the past week but little business has been done on the market for these shares, and few alterations in price are to be recorded. There has been, too, no news from the various coal districts to back any little movement in prices which might be evincing itself. It is satisfactory, however, to note that some few enquiries have been coming forward for this class of shares, while there has been a scarcity of sellers. Alltami shares close as last week—at about 4 to 5. Some few shares have been offered, and quotations lately have, consequently, been weaker. Now, however, the market is more clear of shares, and consequently firmer. Shareholders in collieries should endeavour to hold their stock in times of depression. The opening upon the main seam continues satisfactorily, the quality of the coal being excellent. Llay Hall, 8 to 10. Mold Argoed, 2 to 3. Chapel House shares have been dealt in at 3 to 3½, at which rate prices close firm. The new pit is down 310 yards, and is being pushed forward with all speed. The profit for September has, we understand, been very satisfactory, the average rate per ton being 2s., as against 1s. 9d. and 1s. 10d. for July and August respectively. Such a rate of profit on the increased output which is proposed to be made when the new plant becomes completed would yield a handsome return on the capital of the company. Cakemore keep firm at about 2 to 2½. Cardiff and Swansea have been enquired for, and close at 1 to 1¼. Newport Abercarn have been dealt in at 4 to 4½. It is expected that the second pit will be completed to the Black Vein by the end of next month. New Sharlston close at 3¼ to 3½. Pelsall Coal and Iron, 2¼ to 3½. Thorp's Gawber Hall, 2¼ to 2⅜. Nant-y-Glo and Blaina, 20 to 22. Consett, 18½ to 19. Benhar, 8½ to 9.

At the Truro Ticketing, on Thursday, 2924 tons of copper ore were sold, realising 8951*l*. 1s. The particulars of the sale were—Average standard, 94*l*. 10s.; average produce, 6⅛; average price per ton, 3*l*. 1s.; quantity of fine copper, 180 tons 7 cwts. The following are the particulars:—

Date.	Tons.	Standard.	Produce.	Per ton.	Per unit.	Ore copper.
Sept. 20.	2980	£ 88 0 0	6⅝	£3 1 0	9s. 3d.	£46 5 6
Oct. 4.	1292	8[1] 5 0	8	4 3 0	0 4½	51 17 6
„ 18.	2924	94 10 0	6⅛	3 1 0	9 11	49 13 0

Compared with the last sale, the standard has been stationary.

At the Swansea Ticketing, on Thursday, 3742 tons of ore were sold, realising 13,649*l*. 9s. 6d. The particulars of the sale were—Average standard for 9 per cent. produce, 82*l*. 8s. 4d.; average produce, 6⅝; average price per ton, 3*l*. 13s. 0d.; quantity of fine copper, 246 tons 18¾ cwts. The following are the particulars of the two last sales:—

Date.	Tons.	Standard.	Produce.	Per ton.	Per unit.	Ore copper.
Sept. 25	2216	£ 79 14 9	16⅞	£ 9 15 3	11s. 7d.	£ 57 18 0
Oct. 16	3742	82 8 4	6⅝	3 13 0	11 0	55 5 6

Compared with the last sale, the advance has been in the standard 2*l*. 13s. 6d., and in the price per ton of ore about 3s. 6d. Messrs. Richardson and Co. report that the Betts Cove ore gave a produce of 6 13-16, and sold at 11s. 1½d. per unit; Union produce, 5 13-16; per unit, 10s. 8½d.; New Quebrada produce, 7 13-16; per unit, 11s 6¼d.; and Knockmahon produce, 9⅞; per unit, 11s. 10¾d. There will be no sale on Oct. 30.

*** With this week's Journal a SUPPLEMENTAL SHEET is given, which contains: Original Correspondence: Lignites; Manganiferous Iron Ores of Devon and Somerset; Prevention of Colliery Explosions; the Barometer, and Colliery Explosions; Extracting Moisture from Peat; Signalling in Mines; Stand for Rock Borer; Wye Valley Mine, and Rock Drills; Cost-Book Mines; the Cost-Book System: Pateley Bridge Mines (C. Williams); Mining in the Isle of Man—Glenroy Mine (J. Barkell); Mining in Montgomeryshire; Lead Mining in the High Peak of Derbyshire; Mining in South Wales—Pant-y-Mwyn; the Combmartin Mines; South Condurrow Mine; Successful Mining—the Cambrian, and Capt. Absalom Francis; South Condurrow Mine, and Wheal Grenville; Llan Gan Lead Mine; Valuable Discovery of Slate in North Cornwall; New Quebrada Company; China Clay Works; the Effect of Deceptions—The Extraordinary Discovery of Copper—Foreign Mining and Metallurgy—Foreign Mines—The Almada and Tirito—Scotch Mining Share Market—Patent Matters—Meetings of New Zealand Kapanga, Emma, Cleddau Valley, Bedford United Mines, &c.

LEADHILLS.—According to the consulting engineer's report, which is published in another column, the extensive run of mines are opening out well, and some important points of development now being carried on will result shortly in laying open increased reserves of ore ground. The lead ores broken for October month (four weeks) will be over 250 tons.

TANKERVILLE.—The 100 tons of lead ore sold this week realised 12*l*. 10s. per ton, which was an advance of 5s. per ton on the previous sale. Some important improvements are confidently expected in the drivings and sinkings on the several lodes.

EAST LOVELL.—A cross-cut north is being extended at the 40 to cut the tin lode. If proved rich a great rise in prices of shares may be looked for. The improvement in the standard for tin ores is likely to make this mine dividend paying.

PARRACOMBE.—We understand that mining operations are being pushed forward as rapidly as possible (under the management of Capt. C. H. Maunder) in this rich and highly promising district. The proprietors have now—after some delay in obtaining one portion of the sett—succeeded in securing a very extensive property, being over a mile on the direct course of the lodes. The sett is very favourably situated, commanding a southern aspect, and having a fine stream of water, and the main road to Combmartin both running through it. It is said that the railway from South Molton to Combmartin, which has for some time been talked of, will very shortly be commenced, and will pass within a short distance of the mine.

LLAN GAN (Lead).—A marked improvement is reported in this mine. In driving the west level the miners have met with a body of rich ore 8 feet wide, containing good ribs of solid lead. The men will be able to accomplish as much in one day now as previously it took a week to do. In Wright's level east driving the ribs of lead are thickening, and the lode otherwise improving as it is driven on. The mine never looked so well, or gave such indications of continued improvements, as it does at the present time.

WHEAL AGAR.—On Oct. 8, 185 tons of tinstone sold for 303*l*. They sold on Wednesday last 181 tons, containing by assay 9 tons 5 cwts. of black tin, which realised 305*l*. 8s. 6d. The rods and lift have been fixed to the bottom, and are working well. We are now about fixing skip-road, which we hope to do without suspending our driving the bottom level. There is no change in the mine since the report for the meeting.

THE PROPOSED MINERS' PERMANENT RELIEF SOCIETY FOR NORTH WALES.—A further meeting was held at the Queen's Hotel, Chester, on Tuesday, to take steps for the formation of a Miners' Permanent Relief Society for North Wales. Mr. H. Hall, Government Inspector of Mines, for the district, presided. Sir Watkin W. Wynne, Bart. was present, and the meeting was also attended by a number of the leading colliery proprietors in North Wales, Mr. Hedley, Government Inspector, and Mr. Campbell, General Secretary of the Lancashire and Cheshire Miners' Permanent Relief Society.—Sir W. Wynne expressed his high approval of the steps being taken to form such a fund, and moved a resolution requesting the mine owners to co-operate with the proprietors of collieries and the miners in furthering the scheme.—The proposed scale of benefits was discussed, and after a long sitting the meeting adjourned on the understanding that Mr. Campbell should frame rules for the government of the society, and should submit them to the next meeting, when they will be considered, and afterwards submitted to a general meeting of the representatives of the various collieries in the district.

MINE SHARE MARKETS.—During the past week there has been greater activity in the Mine Share Markets, especially for shares in our home lead, tin, and copper mines for investment. When, however a demand springs up for shares in any particular mine, it is frequently found that there is great difficulty in securing them at anything like quoted prices, or even at greatly enhanced prices.

WEST ROSKEAR MINE sold on the 18th inst. a parcel of lead ore at 21*l*. 12s. 6d. per ton. This ore was obtained from the adit level, and when the lode is reached by the cross-cut from the 24, it is expected considerable quantities of this quality ore will be raised.

Notices to Correspondents.

*** Much inconvenience having arisen in consequence of several of the Numbers during the past year being out of print, we recommend that the Journal should be *Ordered on receipt*; it then forms an accumulating useful work of reference.

GOLD EXTRACTION.—Can any correspondent inform me where, in this country, I can obtain Mr. W. A. Dixon's paper on "A Method of Extracting Gold, Silver, &c., from Pyrites," lately read before the Royal Society of New South Wales.—E. T. S.: *Bideford.*

ANGLO-BRAZILIAN.—I should be glad to learn whether operations are still continued at the Anglo-Brazilian Gold Mine, at Passagem. The mine was bought by a German, Mr. Winterbourne (formerly reduction officer at Morro St. Anna), in conjunction with Capt. Martin. I am anxious to ascertain the address of the former.—E. T. S.: *Bideford.*

ROSSA GRANDE—"Shareholder" (Minas Geraes).—No meeting has been lately held, as the shareholders decided at their last meeting to wait until Mr. Gordon (of the St. John del Rey Company) reported on the property; he is expected in London shortly.

Received,—"L. L." (Algiers): The remittance pays subscription to Feb. 16, 1878; an additional 4 fr. 50 c. will complete to end of March, 1878. The subscription is 39 frs. per annum—"E. F." (Paris)—F. M. F. Cazin (New Mexico, Sept. 26): We contemplated the arrangement suggested—"Shareholder" (New Consols)—"Constant Reader" (Exeter)—"Index" "F. E. V. N."—"J. P." (Barnstaple)—"B. S." (Maidanpek)—"Subscriber" (York) should write to the Post Office—"E. J. C." (Manchester): We are obliged for the information—"Student" (Bath) "Shareholder" (South Condurrow)—"Working Collier" (Barnsley): The idea is not new; it has been frequently mentioned in the Journal—"M. A."—"C.B." (Scorrier)—"J. H. J" (History of Metals): Next week.

IMPORTANT NOTICE—REDUCTION OF POSTAGE ON THE "MINING JOURNAL."—In consequence of the new POSTAL CONVENTION, which came into operation on July 1, the postage of the *Mining Journal* to many countries will be reduced to one fourth. Henceforth the subscription will be 1*l.* 10s. 4d. per annum (39 frs.), postage included, for the following countries. The amount will, if desired, be collected at the subscriber's residence at the end of each year. The subscription continues until countermanded:—Austria, France, Belgium, Denmark (including Iceland and the Faroe Islands), Egypt, Germany, Gibraltar, Greece, Heligoland, Italy, Luxemburg, Netherlands, Norway, Portugal (including Madeira and the Azores), Roumania, Russia, Servia, Sweden, Switzerland, United States, Malta' Turkey, Morocco, Tunis, and the Canary Islands. Spain 1*l.* 19s. (50 frs.)

THE MINING JOURNAL,

Railway and Commercial Gazette.

LONDON, OCTOBER 20, 1877.

THE RATING OF COLLIERIES IN DURHAM AND NORTHUMBERLAND.

That the present system, or systems, of rating collieries in England and Wales is not only most unsatisfactory but annoying is fully shown by the number of appeals lodged against the valuations of experts employed by the Assessment Committees of our Poor Law Unions, and in very many instances with unqualified success. We are also pleased to find that our own views on the subject, taken in connection with the notices that have recently appeared in the Journal, showing the different ways in which colliery property is valued for rating purposes, have been fully appreciated by the class most interested, and who desire to see a uniform system adopted, from which there can be no deviation. With respect to Yorkshire, we have shown that in some Unions the rateable value of coal mines is determined by deducting in some cases from 15 to 25 per cent. from the gross estimated rental, the latter being arrived at in a variety of ways, the coal, for instance, being valued at so much per square foot or so much per acre, or on the royalty paid by the lessees. In other instances the rateable value is reached by assuming what a colliery would let at from year to year, or by a system which was not made known to the guardians by the surveyors or valuers. In South Wales we have also pointed out the different modes by which collieries were rated. In Glamorganshire most of the mines have been valued by Mr. HEDLEY, so one of whose decisions have been successfully appealed against. At Bridgend and Coatbridge there is no difference between the gross estimated rental and the rateable value. In the Cardiff Union, however, the gross estimated rental is reached by adding 25 per cent. to the rateable value, but how the latter is obtained the committee state they are unable to tell; and the same state of things exist in the Pontypridd Union, whilst at Pontardawe the assessment is made on the quantity of coal raised, the charge being 7d., 8d., and in some instances 9d. per ton. In some parishes in North Wales the gross rental is as high as 11¼d. per ton, from which 10 to 12½ per cent. is deducted in fixing the rateable value. With these facts before us, we now purpose giving the mode of assessment in Durham and Northumberland, where the output of coal is the largest in the kingdom, so that our colliery owners and all others interested will be able to fully realise the different systems in force for assessing the rateable value of coal mines, and the advantages or disadvantages of those in the various Unions. It will also be open for the consideration of our colliery proprietors whether, from the various modes adopted, something might not be taken from one and another, by which a harmonious system of a satisfactory character might be obtained.

The gross estimated rental and rateable value of the counties of Durham and Northumberland are as follows:—

	Number of mines.	Gross estimated rental.	Aggregate rateable value.
Durham—Auckland	99 ...	£176 275 ...	£134,429
Chester-le-Street	29 ...	135,496 ...	101,924
Darlington	1 ...	3 886 ...	2,914
Durham	43 ...	118 784 ...	89,404
Easington	9 ...	61,116 ...	45,837
Gate-head	22 ...	29 000 ...	26,215
Houghton-le-Spring ...	13 ...	39,500 ...	29,426
Lanchester	51 ...	97,918 ...	91 974
Sedgefield	6 ...	11.800 ...	9 555
South Shields...	5 ...	24 753 ...	18,598
Sunderland	2 ...	29 305 ...	22,200
Teesdale	10 ...	3 560 ...	2,670
Weardale...	4 ...	9,924 ...	6 885
Northumberland—Alnwick..	6 ...	3.320 ...	2,590
Bellingham	10 ...	1,983 ...	1,570
Berwick-on-Tweed ...	7 ...	2.292 ...	2,482
Castle Ward	10 ...	17,312 ...	13,358
Glendale...	6 ...	894 ...	799
Hallwhistle	13 ...	11,924 ...	9,008
Hexham	20 ...	21,965 ...	16,353
Morpeth	17 ...	73.375 ...	56,525
Newcastle	5 ...	6,472 ...	4,855
Rothbury	4 ...	319 ...	270
Tynemouth	20 ...	86,131 ...	65,287
Total	412 ...	£967,004 ...	£755,038

Contrasting some of the Unions with others, there appears to be a vast difference between the aggregate rateable value and the gross estimated rental. Thus we find that whilst in Easington the rateable value is exactly 25 per cent. less than the gross estimated rental, in Lanchester the difference between them is scarcely 8 per cent. These wide differences, too, will be found in very many instances, so that it is evident then in one Union the colliery owners are in a more favourable position than those in some others. But, of course, there is much in the way in which the collieries are assessed by the surveyors or valuers, most of whom it would appear to have a mode of their own, which a few of them, like Mr. HEDLEY, even keep secret from those who employ them; and in Durham we find a different system in several Unions to that of any other Unions we have. In Auckland the coal is valued in classes at from 26s. to 16s. per 50 tons, according to the quality of the coal, and one-fourth is deducted from the gross rateable value. The Chester-le Street district, so far as coal mines are concerned, is a very large one; the assessment is made by calculating the annual values of the coal worked in the preceding year at a reasonable royalty per ton, with the rent of the land occupied by the mines, and from the gross rental so obtained 25 per cent. is deducted for repairs, &c., and the remainder is the rateable value. At Gateshead we have another marked change, for the gross rental is taken from the total output for one year, then to get the rateable value there is deducted one-fifteenth for colliery consumption, and then there is assessed 1s. 6d. per chaldron of 53 cwts., which is equal to 6·80d. per ton. Houghton-le-Spring furnishes another illustration of the many ways there are for rating collieries, for in that Union it seems the agricultural value of the land occupied by the mines and the buildings are taken into consideration in getting at the gross estimated rental, in addition to which there is the royalty rent, varying from 1*l.* 5s. to 17s. per ton of 18½ Newcastle chaldrons, a rent equivalent to 5s. per ton for the use of the shaft, way-leave, pumping-engines, &c., then a rent of 6 per cent. on the value of all furnaces, buildings, machines, and plant in the mine and on the banks. After all these have been obtained, a reduction of 25 per cent. is made in determining the amount of the rate.

In the Sunderland Union the royalty of the coal is taken at 5½d. per ton, to which is added the rent of the lands occupied by the mines, and interest at 6½ per cent. per annum on the value of the buildings and plant; and these, being added together, give the gross rental, from which 25 per cent. is deducted for expenses, &c., on the royalty rent, 10 per cent. from land, and 16⅔ per cent. on buildings, to fix the rateable value. Durham, it will be seen, has equally as complicated machinery, and as many different ways of valuing collieries as any other mining county we have.

The adjoining county of Northumberland is also no exception to the rule; and here we have to note the fact that Mr. HEDLEY has valued a number of the collieries, and as in the case of South Wales, the Assessment Committees state that "what rule or basis he went upon the clerk to the guardians cannot say." In one instance—that of Castle Ward—"it is supposed to be at a certain rate per ton on the vend, but whether in addition to this interest is charged on the money expended on shafts, buildings, and machinery is not known to the committee, neither is the rate per ton known."

At Bellingham the gross rental is arrived at by deducting from the gross earnings the necessary expenses, and the rates made by allowing 22 per cent. for depreciation, wear and tear, and for repairs. In the Haltwhistle Union the guardians are not aware of the means by which the last assessment of the large mines was made in 1873, but the rule as to the small mines is the amount of rent paid for the same. In arriving at the rateable value a deduction is made of 25*l.* per cent on the larger mines, and from 5*l.* to 15*l.* on the smaller mines. This is certainly one of the most singular modes of assessing that we have met with, but from the number of "cooks" employed it is not surprising that the same dishes are served up in a variety of ways; but there is considerable difference with respect to many of them, for whilst the majority make no secret of the mode of cooking, Mr. HEDLEY, who appears to have the most to do with the Northumberland collieries, as well as with many in South Wales, keeps his system a profound secret, even from his employers, so that the latter can only speculate upon the process. But they are evidently satisfied, knowing that the colliery owners must be assessed to the fullest extent at the least, otherwise they would not cry out as they do; but we certainly think that Mr. HEDLEY has no occasion to keep his hand closed so tightly, for we are decidedly of opinion that the many anomalies connected with the present system of assessing collieries cannot be much longer maintained, and that an effort in all probability will be made during the next Session of Parliament to have one general system, of a simple character, made imperative in all counties and Unions.

In the meantime the figures we have given with respect to different districts show the many glaring inconsistencies that exist in the rating of coal mines, and the necessity there is for their being done away with by a plain and simple process, so that all properties may be equitably rated, for in so doing the money of the ratepayers, now lost in opposing appeals, will be saved, there will be less loss of time and money, as well as annoyance, to colliery owners, whilst the poor, as the recipients of the rates, will be supported just as usual. The only difference that can take place is that some farmers and tradesmen may have to be rated a trifle more than they have been, instead of being able to compel the owners of mines to pay more than their fair quota according to their holdings.

OUR COAL ABROAD.

The exports of coal from the United Kingdom appear to have sustained a certain check in September, having only amounted for that month to 1,362,507 tons, as compared with 1,568,368 tons in September, 1876, and 1,493,501 tons in September, 1875. There was a great decline in the exports to Russia in September, only 83,024 tons having gone to the Czar's empire in that month, while the corresponding shipments in September, 1876, were 155,879 tons, and in September, 1875, 133,226 tons. The exports also fell off in September to Sweden and Norway, Denmark, Germany, Holland, Spain, Italy, Turkey, Egypt, Malta, and British India. The exports to France presented a slight increase in September, having amounted to 233,983 tons, as compared with 232 862 tons in September, 1876. The exports to Brazil in September also increased to 35,342 tons, against 32,490 tons in September, 1876. When we come to deal with the aggregate totals for the first nine months of this year we find that the whole exports to September 30 amounted to 11,897,895 tons, against 12 303,848 tons in the corresponding period of 1876, and 10,770,799 tons in the corresponding period of 1875. The exports to both Germany and France have declined this year. The former amounted to 1,551,960 tons, as compared with 1,727 509 tons in the corresponding period of 1876, and 1,634,544 tons in the corresponding period of 1875; and the latter to 2,213,702 tons, as compared with 2,399 734 tons and 2,001,214 tons respectively. The exports have fallen off this year to Russia, Denmark, Germany, Holland, France, Italy, Turkey, and Egypt; but they have increased to Sweden and Norway, Spain, Brazil, Malta, and British India. The increase observable in the case of India has been very marked, that great dependency having imported 716 827 tons of our coal in the first nine months of this year, while the corresponding imports in the corresponding periods of 1876 and 1875 were 494,636 tons and 400,512 tons respectively.

It is curious to observe how greatly dependent upon us Germany and France still are in the matter of their coal supplies, notwithstanding the considerable progress which coal mining has made in both countries. Thus there appears every probability that Germany will take 2,000,000 tons of coal from us this year, while France will not absorb much less than 3 000,000 tons. In the case of France the great development of steam-power and the somewhat increased use of coal for domestic purposes account, to some extent, for the continued reliance of the nation upon its neighbours for large quantities of the combustible which it consumes. It has been also noticed that France has been using English coal this year in preference to Belgian coal. These circumstances largely explain the somewhat important demand for our coal among the French people, but it is rather more difficult to understand how it is that the Germans are glad to purchase 2,000 000 tons of our coal annually, since they deliver rather heavy quantities of their own coal upon the markets of France and Belgium. The ways of commerce are almost past finding out, but it is, nevertheless, remarkable that Germany should export a good deal of her coal to her nearest neighbours, and then be glad to obtain large quantities of English coal overseas.

We have taken the exports of our coal—and the expression "coal" comprises, it should be observed, coke, cinders, and patent fuel—at 11,897 895 tons for the first nine months of this year, but to this total we ought really to add 2,696,463 tons in respect of coal shipped for the use of steamers engaged in the foreign trade. The combined totals amount to 14,094 358 tons, and, assuming that the exports move on at the same rate for the remainder of 1877, the exports in one form or other for the whole year will amount to 18,792,477 tons. To those who can remember the time—a time, too, not so very remote—when our coal exports were less than 10 000.000 tons annually, the progress indicated in the figures given must appear very remarkable. We are exhausting our coal resources tolerably sharply through our own largely increased consumption: but, as if this were not enough, we are also exporting more and more freely to foreign countries. The efforts which those countries and which colonies are making to open out coal supplies of their own appear to have much effect, since the consumption of coal is growing throughout the world.

MINE INSPECTION IN AMERICA.

The reports of the Government Inspectors just issued do not very encouraging account as to the safety of the American coll It appears that in Mr. Samuel Gay's (Schuylkill) district 27 were fatally injured, and 48 injured more or less, and total of 2,891.117 tons of coal, making 107,078 tons for each life lost one life was lost for each 378½ persons employed in and abou mines. He says "there is a fearful lack of discipline in and the mines, which is undoubtedly owing to the want of a co special rules for the government of the employees of each col I have made a careful examination of all places where those dents occurred, and do not hesitate to say that a large percen of those accidents might have been prevented under rigid discipline." In Mr. William Hemingray's (Shenandoah) di there were 37 fatal accidents, the same as in 1875, with 61 non- accidents, or 45 less in 1876 than in the year previous, and casualties were due in great measure to negligence and lack of k ledge of mining by farmers and others who have assumed the du miners in the breasts or gangways. The number of collieries which yielded last year 2.739,977 tons of coal. Number of p employed in mining, 10,652; ratio of coal produced to each p 282 tons; ratio of coal produced to a life lost, 86 711, and one 288 persons employed. In Mr. S. Parton's (Pottsville) district were 28 fatal accidents for the year ending Dec. 31, 1876—2 lost lives by falls of coal, 3 by rock and slate, 5 by falling into and shafts, 10 by fire-damp explosions, 2 by explosions of po and crushing under wagons, 1 by crushing by machinery, and breaking of ropes and chains. This gives 1 life for every 82,752 Besides those who were killed or died subsequently of injuri ceived, 75 persons were injured, two of them being boys.

With regard to the casualties in Mr. T. D. Jones's (South Lo and Carbon) district there was in 1876 a loss of 37 lives, an inc of 16 over 1875, while the number of persons injured was 74. number of tons of coal produced was 3 503,118, by 9648 person 636 tons to each person. The amount of coal procured to eac lost was 94,679 tons. In Mr. T. M. Williams's (Middle Lu Carbon) district there was in 1876 a diminution in the numb lives lost, there being 55 against 63 for the year previous. The production was 4,615,386 tons, giving 83,916 tons for each life The general average of working time at the 58 collieries was days. The number employed at the mines was 15,703, of 4230 were boys. Besides the number killed, 87 others were in In Mr. W. S. Jones's (Eastern Wyoming) district there were sons killed at the mines during the year 1876, and the numb persons injured 120; the number of widows 21, and the numb orphans 79. There was a decrease in the loss of life of 18, as pared with the loss in 1875. The ratio of coal to each life is to be 110,511 tons; a favourable showing as compared with districts. He seems to hold with the other Inspectors that th are largely to blame, and that means can be found for reducing shocking list of killed and wounded. The total amount of mined in this district in 1876 was 6,357,879 tons. Taking th reports together it appears that 230 lives were lost in 22,424,533 tons of coal, so that one life was lost for each 97,49 of coal raised. In addition to those to those killed 473 are re to have been "mortally injured." There are 381 collieries, a total number of men and boys employed was 70,538, so that was lost for each 307 employed.

THE MINES REGULATION ACT—MINING PROSECUTIONS IN LAND.—At Castlecomer, on Tuesday, before Messrs. J. T. B resident magistrate, and G. O. Webb, the following contraven of the Coal Mines Regulation Act were preferred by Mr. Dick Her Majesty's Inspector of Mines, the cases being conducted Arthur J. Boyd, solicitor Kilkenny, against—Mr. James S owner of the Skehana Colliery, and Mr. John Harding, manag spectively, for not providing an indicator to show the positi the load whilst raising and lowering miners in the shaft, and providing an adequate amount of ventilation to dilute and harmless noxious gases in the working places and travelling Mr. Thomas Nevins, manager of Clogh Colliery, belonging to Robson, Grace, and Co., for allowing more than 20 persons employed below ground at the same time, for proving, &c., in with only one shaft or outlet; Mr. Joseph Dobbs, and his m Mr. Alexander M'Luckie, also for permitting more than 20 p to be employed below ground at the same time in a single the Jarrow Colliery. The Assistant Inspector of Mines, Mr. was also in attendance, but the defendants admitted the comp and each firm was fined 2*l.* and Court costs.

THE MINES REGULATION ACT IN SCOTLAND.—At the K nock Sheriff Court, on Tuesday, John Whiteford was charge a contravention of the Mines Regulation Act, 1872, in so fa several occasions in July, he being then employed to inspect safety-lamp before the time of commencing work the No. 3 Auchenharvie Colliery, and also to make a true report of its tion as regards ventilation, said pit being a mine in which fi had been found within a period of 12 months, he failed to re the book kept for that purpose his report as to the ventila the pit. The accused pleaded guilty. The Procurator Fi plained that Whiteford had made the required inspection, t he had failed to make a report. No accident resulted, and th was brought forward more as a warning than with a view to p ment being inflicted. The sheriff, in these circumstances, in a nominal penalty of 5s., at the same time expressing a hop it would be a warning to persons in similar positions that t must be rigidly enforced.

BLAKE'S STONE-BREAKER IN NORTH WALES.—The econom utility of Blake's stone-breaker in connection with the prep of ores for market has been frequently pointed out in the *Journal* during the past 15 years, and in all those districts in its adoption has been general a material reduction in the d costs has been effected; but even now there are a vast num mines at which it has never been employed. In the pres of the metal market, however, the necessity of economy i than ever apparent, and it may be anticipated that the breaker will soon come to be regarded as quite as essential chine upon the dressing-floors as buddles or hammers. To fa the purchase of them Mr. H. R. Marsden, of the Soho Fo Leeds, has appointed the SANDYCROFT FOUNDRY AND WORKS COMPANY, at Hawarden, Chester, sole agents for the his patent Blake's stone-breakers of all kinds in North Wa Cardiganshire; and, owing to the influential connection this has in the district, there can be no doubt that these most valua chines for the miner will be more extensively introduced than

COAL AND IRON IN THE UNITED STATES.—The aggrega duction of coal in Pennsylvania to Sept. 15 this year amou 15,784 239 tons, against 14,010,400 tons in the corresponding of 1876, showing an increase of 1,773,839 tons this year. T duction of 15,784.239 tons effected to Sept. 15 this year w up thus:—Anthracite, 13,604,447 tons; bituminous, 2,179,79 The movement of coal and coke over the Pennsylvania Rail Sept. 7 this year was 3,156,308 tons. An extensive coal d traversed by the Texas and Pacific Railroad, extending Parker. Palo Pinto, Stevens, and into Shackleford counties; who have recently examined the locality report the existence vein of good coal exceeding 4 feet in thickness, showing on the different streams running into the clear fork of the Brazos. Quotations are to some extent nominal in the P vanian coal trade, and in order to secure custom concessi to be made. Some little improvement is reported in the trade in Pennsylvania; the disposition among buyers is good quality, and as business improves there is little doub

ality will be more appreciated than it has been; some of the mills are running full on specialities. The cost of production has been materially reduced in the American steel rail trade, but prices have also declined to an equal extent, and there appears to be now a disposition to make a stand at present quotations.

REPORT FROM CORNWALL.

Oct. 18.—There is no change to report in the condition of mining generally, or of the market for shares in particular. We only, indeed, repeat what we have already said, that the mines, so far as their mineral prospects are concerned, have never looked better than they do now, and that we believe the adverse tide has at length fairly turned. Those who were wise enough to invest at the depth of the depression have already done well, and are likely to do still better. Wherever we turn, in fact, the present prospects appear hopeful, more hopeful than in any assured sense they have been for years, and while on the one hand we have greater economy exercised than was ever known before, on the other a fatal blow has been struck at the old fashioned system of mine accountancy, and the cost book has at length been fully and fairly adapted practically in our large concerns to the wants and changed conditions of the times. Adversity is not pleasant by any means, but it certainly has its uses, in mining as well as in everything else.

There is one direction, indeed, in which we cannot regard the present condition of affairs in respect to actual mining operations as at all satisfactory. Let anyone cast an eye over the brief list of engines whose duty is reported, and then carry his memory back to the far higher duties which ranged in former times, and reflect how very small a proportion of the pumping engines of the county are reported at all. The conclusion is irresistible that there is not the economy in the unwatering of our mines that there ought to be. We are quite aware that reason may be assigned for some of this falling off, which in their way, and to a certain extent, are adequate. Old engines, for one thing, cannot be expected to do the work of new ones, and there are other directions in which the conditions of actual working have changed, which must be taken into account. But when every allowance is made we believe we are within the mark when we assert, taking the county at large, that the actual unwatering of our mines costs at least a third more than it ought to do. Cornish pumping-engines are the best in the world, yet somehow or other Cornish pumping is not up to the mark. The price and quality of the coals to which Mr. Rule has so often directed attention have something to do with this. But, then, we really stand in need of efficient enginemen. Our engine-houses should not be the mere refuge for the destitute, which they too often are. It would be cheaper in many cases to pension the halt and the maimed off in idleness than to exercise the mistaken philanthropy of putting them in charge of such important departments of machinery.

We are now approaching the season when this matter becomes of extreme importance. Judging by present appearances, and making the best use we can of the experience of former years, it does not seem likely that the approaching winter will be a very wet one. Still it behoves every one to be prepared, and we are glad to learn that the adit was never in so complete a state of efficiency as it is at present. During the summer it has been put into thorough repair, and for some time to come, at any rate, there will be no more danger of chokes and flooding.

And, while on the weather, it may be just as well to make some reference to the event of the week—though unconnected with mining—the furious storm which raged over the whole West of England, in common with many other parts of the kingdom, on Sunday night. Inland, so far as is yet known, the damage was not so great as it has been on many other occasions, but landward not for fifty years has there been a gale which has carried with it such wide-spread and such great and varied destruction of and damage to property. Masons are reaping a fine harvest all over the county.

REPORT FROM NORTH AND SOUTH STAFFORDSHIRE.

Oct. 18.—The quarter opens with the crucial price of furnace coal standing at 9s. per ton, and of best thick coal at 14s. 6d. The demand upon the week has improved, the result of the holding of the quarterly meetings, and more work is being done at the collieries. As regards furnace coal in particular, however, it has been a long time since the demand came from so few sources, for the furnaces in blast number only 48. Prices of all sorts tend in consumers' favour, but there has been no giving way since my last. The double engine of Messrs. S. Groucutt and Sons is now raising from ... to 8000 tons of water per day at the expense of the Mines Drainage Commission, who are in this way trying to prevent the flooding of the Tipton district. In the Bilston district the flood is rising 3½ ft. per week. There is no material change to note in the position of the raw or the manufactured iron trade. The circumstance of Quarter-day prices being unaltered has not encouraged buyers to place orders beyond passing necessities. About Wolverhampton serious losses—to the extent of 1000*l.* a year in individual cases—and much impediment to business is resulting from the existence in the canal of strong acids, which destroy the pumps and boilers fed from the canal. The canal company have offered 200*l.* reward for the detection of anyone found letting acid refuse into the canal; and certain of the ironmasters most injured are protesting their determination to abate no effort, however costly, to stop the evil.

On the Stock Exchange the shares of the Sandwell Park Colliery have seen a rise of 5s., sales having been effected at 18¾; and the ...ick and Huntington property has changed hands at 6 dis. The (three-quarters paid) shares of the Ivy House Colliery (Limited) are offered at 5 dis., but at this figure there are no buyers; and buyers are trying to secure at 7½ dis. the shares of the Spon Lane Colliery, but no holders appear in the market. Other colliery and ironworks shares are unaltered on last week: 7*l.* prem. has been paid for the Patent Nut and Bolt Company's and also for the Birmingham Small Arms Company's property. Muntz's Metal Company's shares have realised 3⅛ and 3 1-16th prem., ex div.; and the shares of the Birmingham Tramways and Omnibus Company 2*l.* and ...6d. prem. Wagon works and waterworks property has likewise a down movement.

A heavy failure has just occurred in connection with the metal trade of this district. It is that of Messrs. Sauerland, Hatch, and Co., South American merchants, of Newhall Hill, Birmingham. The firm filed its petition in the Bankruptcy Court on Monday for ...l., 45,000*l.* of which are represented by customers' bills under discount, which it is expected will be paid by the acceptors at maturity. The assets are roughly estimated at 20,000*l.*, and consist of book debts, stock of goods, &c. The cause of the failure is attributed to heavy losses, and the long continued depression of business in South America and in other foreign markets. The firm has been established for seventeen years.

The Miners' Organisation are just now holding a series of mass meetings throughout the district in advocacy of unionism. The chief speaker is Mr. Thos. Halliday, the newly appointed president of the South Wales Union, and amongst other things he points out that there is one important provision of the Mines Inspection Act which has been taken advantage of in only a few cases, but which ought to be put in force very generally—that section empowering the men to employ a couple of their fellows to examine into the state of a mine in all respects on their behalf.

In North Staffordshire the market is unsettled, pending an adjustment of the wages question. On Tuesday a conference of representatives from the North Staffordshire Coal and Ironmasters' Association, and of the miners and enginemen, was held to consider the subject, and the employers firmly intimated that the 10 per cent. reduction would have to be enforced. Since then the members of the Amalgamated Society of Engineers, Engine Fitters, Smiths, and the like, have resolved to commence, on Saturday, a strike against the drop. It is noteworthy that the local leaders of the miners are addressing the men in terms which mean an amicable settlement of the difficulty.

At the Wednesbury Police Court on Tuesday John Carter was summoned, as one of the owners of the Golde's Green Colliery, for a breach of the 22nd general rule under the Mines Regulation Act. Owing to a defect in the winding machinery an accident happened at the colliery on March 12 last, by which two men working in the shaft were killed. At an inquest which was held a verdict of manslaughter was returned against Carter's partner, who was the certificated manager, but who died soon after the accident. The facts were admitted, but it was contended for the defendant that he lived at Birmingham, and was only a sleeping partner. He had taken every means he possibly could to secure the proper working of the colliery by entrusting the affair to his partner, who held a Government certificate. The Bench took this view, and dismissed the summons. Recognising the importance of the point of law raised they granted a case which was applied for on behalf of the Government Inspector of Mines.

Mr. Burt, M.P., addressing a mass meeting of miners at Hanley last night, after explaining the advantages of unionism and arbitration, showed how reductions of wages had generally been commenced in non-union districts, where strikes had always been most disastrous. Strikes meant a waste of wealth, and implied stupidity; and he hoped the miners in North Staffordshire would resort to reason and common sense, and not to brute force. He had never known a strike successful in a falling market, and he hoped the dispute would be settled amicably.

REPORT FROM MONMOUTHSHIRE AND SOUTH WALES.

Oct. 18.—Again this week no improvement in the Iron Trade can be noted. As before intimated, iron shipments to the northern ports appear to be over for the season, and trade is very dull, fresh orders being exceedingly slow in coming to hand, and clearances generally show a falling off. So bad is business, and so low are freights, that vessels leave now and then in ballast. The iron dispatched during the week has been mainly to Riga and Bombay, of rails, with a parcel of a few hundred tons to Rochelle. Quotations for iron rails do not improve, and at the steelworks business is not so brisk as could be wished. A fair amount of work is in hand at Rhimney and Sirhowy, and last week prospects seemed a little better at Tredegar, but it is not likely that the works, or portions of works, now idle in the district will under present circumstances be re-started. Bars are unaltered, and scarcely a clearance has taken place during the last few days—for the last month in fact—the foreign dem and being exceptionally dull. As to Tin-Plates, there are hopes in the minds of some that the beginning of next year will see an improvement to some extent. At present, however, this "devoutly-to be-wished" consummation seems far off. The foreign demand for coal is not well maintained, and steam qualities are only in fairly good request. House qualities are still rather brisk, but what militates most against colliery proprietors is the continued lowness of prices. In the Swansea district there appears to be a slight improvement in shipments. In few instances is full time the case at our local collieries, and in some cases we hear of the men working only three, and even two, days a week. The patent fuel trade is quiet.

Shipments of iron during the last month fell off considerably at Newport, but more than doubled themselves at Cardiff compared with the corresponding month of last year. The figures are:—Cardiff, 1920 tons, compared with 3718 tons; Newport, 3527 tons, compared with 14,042 tons; and Swansea, 152 tons, compared with 1910 tons. Coal shipments foreign last month were:—Cardiff, 299,119 tons, against 316,119 tons in September, 1876; Newport, 42,115 tons, against 50,333 tons; Swansea, 52,969 tons, against 47,846 tons; and Llanelly, 3144 tons, against 7811 tons. Coastwise clearances were:—Cardiff, 79,041 tons, compared with 70,460 tons; Newport, 76,065 tons, compared with 72,364 tons; Swansea, 24,092 tons, compared with 21,196 tons; and Llanelly, 10,951 tons, compared with 13,132 tons. Patent fuel:—Cardiff, 9552 tons, against 7791 aons; Swansea, 15,820 tons, against 12,968 tons. The following principal clearances of iron during last month, and their destination, will show the direction of the trade:—Bahia, 3133; Frederickstadt, 693 tons; Gothenburg, 3452 tons; Madras, 1150 tons; Sandefjord, 621 tons; Alicante, 1084 tons; and Montreal, 500 tons rails.

A strike appeared at one time imminent among about 1000 colliers employed by the Nant-y-Glo and Blaina Company. Some time ago the men struck for a 15 per cent. advance, which was refused, but they agreed to resume work for two months at a 10 per cent. rise. This time has expired, and the Blaina men demanded the other 5 per cent., the Nant-y-Glo section resolving on going to work. Now, it is satisfactory to state that the threatened strike is averted, the Blaina colliers agreeing to the present terms, the representatives of the company pointing out that trade is so depressed that they could not give more wages than they now do.

On Thursday next Lady Dynevor will cut the first sod for the new docks at Neath Abbey, which will be a grand undertaking for the district, as a large quantity of steam coal will be shipped at Neath Abbey for Aberdare and Merthyr, and thus save six miles of railway tonnage. For some time past the Commissioners have been instituting diligent enquiries, through the medium of a committee, as to the possibility of obtaining reasonable terms for placing the scheme on a practical footing, and their efforts have now been crowned with success. The committee reported in favour of the acceptance of the terms offered by Mr. Vignoles and Mr. Greenbank, well-known London contractors, who have offered to supply the money and contract for the making of the harbour. The committee agreed to a preliminary contract, leaving all power of dealing further with the subject in the hands of the chairman. The cost is put at 165,000*l.*, which sum is to be payable in bonds, bearing interest at 6 per cent., redeemable at the end of 10 years. The contract is to be for works, exclusive of hydraulics and land. The works are to be commenced forthwith, and completed in two years and a half, at the outside three. The bonds are to be entered into for 35,000*l.* on signing the contract, the balance of 125,000*l.* to be deposited in the names of two trustees, one to be named by the Commissioners and one by Mr. Vignoles. The meeting on Saturday was well attended. One of the contractors, Mr. Greenbank, was present, also the Commissioners' consulting engineer, Mr. R. P. Brereton, successor to Mr. Brunel. The land on nearly the whole of the Abbey side belongs to Lord Dynevor, who has promised very favourable terms. The largest proportion of the coal shipped from the Neath river is sent away from the wharves of the Dynevor Coal Company. The attitude he is assuming to the undertaking is, therefore, most significant. The other landowner is Lord Jersey, who is not so largely interested. The Harbour Commissioners are well capable of successfully carrying through such an undertaking. Mr. Rowland and Mr. Kempthorne, the commissioners' clerk, are entitled to the warmest congratulations of the inhabitants for what they have done in the matter.

MERTHYR EXTENSION RAILWAY.

A large number of gentlemen connected with the railway, mining, and engineering interests assembled at the Pant, near Dowlais, on Tuesday, to witness and inspect the workings at the tunnel on the above railway by means of drilling machinery and compressed air, the machinery employed being the Ingersoll Rock Drills, worked on column bars, driven by compressed air. Two drills were working in each heading or face, the motive power being supplied to them in 2½ in. pipes from the air reservoir, which, with the compressor, engines, and boilers, is situated between the shafts and the open end of the tunnel on the Merthyr Railway. The party first entered the open end of the tunnel, and the visitors carefully and very minutely inspected the drills and the speed of the drilling, which seemed to rival one another, considering the nature of the rock—a hard dark-grey limestone—the average progress being from 3 to 5 in. per minute. To the most practical members present it seemed as if perfection had been at length achieved in the simplicity and lightness of the machines. The automatic feed and extraordinary rapidity of drilling called forth the warmest admiration. After inspecting this portion of the works the party descended No. 3 shaft, where the tunnel is being taken out full size, and on again returning to surface were conducted by Mr. Mackay, the principal contractor for the work, to inspect other portions of the line.

At one o'clock the party were, by Mr. Kenrick and the Ingersoll Rock Drill Company, invited to partake of lunch, which assumed the form of a picnic, the weather being lovely, and in view of the beautiful valley and rugged mountains, extending in the distance to Brecon and the Welsh Coast, a most enjoyable afternoon was spent. Among the gentlemen present were Messrs. C. F. Gooch, Great Western Railway, Cardiff; W. Menelaus, Dowlais Ironworks; Adams (Dobson, Brown, and Adams), Cardiff; W. R. Bath, Merthyr; H. M. Bradford, C.E., London and North-Western Railway, Swansea; A. Henshaw, Brecon; A. Roberts, C.E., Brecon; James Bell, C.E., Cardiff; Thomas Cross, Cardiff; George Martin, Dowlais; A. Sutherland, C.E., Merthyr; Taylor, Merthyr; John Gardner, London and North-Western Railway, Westminster; John Mackay; J. Mackay, jun.; and R. Jenkinson. After full justice had been done to the good things provided, Mr. Kenrick, as one of the representatives of the Ingersoll Drill Company, proposed the health of Mr. Mackay, and said he had great pleasure in seeing the gentlemen present, and that he felt much honoured by the high way in which all spoke of the work the drills were doing, &c. The Ingersoll Drill is proving itself the best drill of its class, doing much more work for the same power at considerably less cost for repairs than any other drill. Mr. Kenrick has used these drills in America for some years past, and on his return to this country he availed himself of them for working in his contracts, as his experience tells him they are the only drills that can be relied on for satisfactory work.

REPORT FROM THE NORTH OF ENGLAND.

Oct. 18.—Again we have to report a week of dulness and despondency, unrelieved by a single symptom that could by any effort of ingenuity be made to appear as the harbinger of better times. The usual weekly iron market, held at Middlesborough on Tuesday, was very flat, and prices were even a trifle lower than they were the week before, No. 3 being quoted at 40s., and No. 4 forge at 39s. net, f.o.b. in Tees. There is a fair quantity of iron going into consumption, but the stocks in warrant stores are rapidly augmenting at the same time, and it is to be feared that those who, a few weeks ago bought iron for the purpose of holding it against an anticipated rise in prices, will be grievously disappointed. There is less sign of a revival than there was a month ago, and the limited demand now current for iron on account of the export trade augurs very ill indeed for the winter prospects.

It is rumoured to-day that Messrs. Jones, Dunning, and Co., of the Normanby Ironworks, who have been doing nothing for some time, intend to blow in three furnaces very shortly. There is no likelihood of any additional furnaces being blown out in the meantime, although it is quite on the cards that if the Lackenby Ironworks with their four furnaces, and the South Durham Ironworks with their three furnaces, which are advertised to be sold next week, should fail to find purchasers, some additional furnaces will be added to to the list of those now out of blast. In addition to these works, the Eston Grange Ironworks, near Redcar, and the North Yorkshire Ironworks, near Stockton, are to be brought under the hammer within the next few days.

The new steelworks of Bolckow, Vaughan, and Co., at Eston, have this week been got into working trim, and the first rails have been rolled under the most promising auspices. All the machinery was found to be in excellent order, and worked without a hitch. The three blast furnaces already built, which are to be employed in making hematite iron, are now producing upwards of 400 tons each per week, being considerably more than the quantity they produced when working Cleveland iron, as they did from their completion until within a few days ago. The company have already stored in bunkers, or in heaps, a stock of over 50,000 tons of hematite—partly from Campanil, in Spain, and partly from Cumberland, the calcareous ores of the one district making an excellent mixture with the silicious ores of the other. The works at Eston are estimated to produce over 1000 tons of steel rails per week, but they will double the production when they have reached their ultimate capacity. Orders have already been received for sufficient to keep the works fully going until next year.

The Coal Trade is in very bad form. Everybody is complaining that things are getting worse instead of better, and it is too apparent that such is the fact. The quantity of coal sent out of South Durham is gradually diminishing, and is proved by the reduced receipts for mineral traffic of the North-Eastern Railway Company. Both for export and manufacturing purposes there is a falling off, although the precise extent of the declension is not very easily gauged. Prices continue miserably poor. Coke is almost the only article that maintains its value. Best qualities are quoted at 11s. to 12s. at the ovens.

There is no change to note in the finished Iron Trade. Plate makers are not quite supplied with orders, and the strike on the Clyde has in some cases caused a good deal of disorganisation, but there is a prospect that this source of trouble and anxiety will very shortly be removed. The Consett Ironworks have been idle for some days during the past fortnight, but this circumstance, which applies to the mills only, is now overcome. Rail makers are doing next to nothing, only one or two firms having any work in hand.

REPORT FROM DERBYSHIRE AND YORKSHIRE.

Oct. 18.—From the lead mining districts in the higher parts of the county, including the Peak, but little information of any importance has come to hand of late. Very few ventures have been entered into for a considerable time past, and investors show a great reluctance in speculating in the lead mines of Derbyshire. At times we hear of some good hauls being made, but taking these in connection with the official returns of the production of lead ore in the county it is evident that they are the very reverse of reliable. Most of the collieries are now doing a very fair trade, and there has been a considerable increase in the tonnage sent to the Metropolis from several of the leading places, including Clay Cross, Tibshelf, Eckington, and Staveley. The London consumers, it may be said, are paying a higher price for their coal than they did in January last, so that a great advantage has been taken by the merchants, which has certainly not been shared in by the colliery owners. The former endeavour to make contracts in advance at the prices which rule when the demand is quiet, but when a change in the weather takes place, or the winter season approaches, prices are sent up, for which there is no reason whatever, for coal is plentiful and far in excess of the consumption. The only remedy for this unfair system of dealing is that so often pointed out—the doing away with the middlemen, and the producer and the consumer dealing with each other direct. Were this done colliery owners would be in a far better position than they now are, whilst the consumers would be able to purchase on far more reasonable terms. Steam coal is not so much inquired for, but a steady business is being done in gas nuts in the carrying out of contracts. There has been very little change of late in the Iron Trade, there being still a fair production of pig, the number of furnaces in blast being the same as for some time past. In manufactured iron a steady business has been done in most departments, although there is plenty of room for improvement at the mills and foundries.

Complaints are still pretty general in Sheffield as to the slackness of trade in several branches, although there are a few that are doing well. The Bessemer establishments are now going along very well on the Indian and other orders, so that most of them there will be plenty to do for some months to come, and in addition to the rails some of them are turning out a considerable quantity of forgings, including axles, tyres, and rods. In crucible steel there has been no material change, so that business is still but moderate. Some of the makers, however, are pushing forward steel wheels for colliery corves and other purposes, so that the competition is increasing in that direction. For the finer qualities of table cutlery some of the makers are doing a steady business, but in the inferior descriptions of most classes of knives quietness still prevails. Advices from America continue favourable, whilst the making of several new lines of railway in Australia, for the purpose of developing the internal resources of that vast territory is finding a good deal of employment for our rail makers and others, whilst orders for implements and other steel goods are also coming rather freely to hand from the same colony. Armour-plates are being rather moderately turned out, and there is not much doing in steel barrels or ordnance. Some

of the foundries are favourably off for business, whilst others have as much as they can do to keep their hands fully going. The house coal trade has become more active, and during the past week an increased tonnage has been sent from several of the leading collieries in South Yorkshire to London. The merchants have raised the price to consumers another 1s. per ton, although there has been no increase at the collieries, so that the metropolitan dealers must now be making much larger profits than they have done during any previous part of the year. Steam coal is not in such brisk request as it has been, owing to declining exports.

The strike at the Dodworth Silkstone Colliery, near Barnsley, where the men have been out nearly six months, still continues. An arrangement was come to a few days since by the manager and a deputation consisting of the secretary of the Association and a number of the men, and it was expected work would be at once resumed. The bulk of the men, however, repudiated the agreement, and so all remain out.

At the Blacker Main Colliery, near Barnsley, where a large portion of the cupola fell in a few weeks since, the damage done has been repaired, and work has been resumed.

About 400 colliers employed in the Draft Pit, Thorncliffe, of Messrs. Newton, Chambers, and Co., near Sheffield, have struck, owing to their being required to use a new kind of benzoline lamp, which they declare to give an insufficient light, and against the use of which most of them are prejudiced.

At the Leeds Geological Association meeting, held on Monday, at the Yorkshire College, Leeds, Mr. J. R. Bower, of Leafield, Moortown, was elected a member of the association. The President (Prof. A. H. Green, M.A., F.G.S.) presided, and gave an interesting account of the Geology of Arran. The north island consists of a large boss of intrusive granite and slates. A large portion of the south island and a belt stretching along the east coast consists of calciferous sandstone, with occasional patches of limestone of undoubted carboniferous age. The Professor described the volcanic appearances of the island, and discussed the origin of some fine grained crystalline granites and other more coarse and amorphous forms. The lecture was illustrated with diagrams and sections, and a fine series of rock specimens from the island, including granite, pitchstone, quartz-felsites, and volcanic breccias.

TRADE OF THE TYNE AND WEAR.

Oct. 17.—There is a little improvement in the demand for house coal, and prices are somewhat stiffer. Gas coal is also pretty good, and the same remark applies to the demand for coke, but the steam and manufacturing coal is so very bad that quite a panic has occurred, more especially in Northumberland, where the stoppage of collieries and the removal of workmen have had a most disastrous effect in certain districts. At Blyth, lately so prosperous and thriving, the depression is most severely felt in the shipping and all other trades. Only one or two pits at Broomhill, at the extreme north of the district, are fully employed, while some others are not exceeding half time. At many of the large ironworks and foundries on these rivers there is a great want of orders, and thus the consumption of furnace coal is seriously reduced, which has a bad effect on many of the Durham collieries. On the whole, however, the depression is not so severely felt in Durham as in Northumberland, as in the former county gas, house, and coking coal is produced in the majority of the collieries. The sudden collapse of the steam coal trade is, of course, a notable feature and a great misfortune, but as the shipping season to the Baltic, &c., is coming to an end, and the masters decline to work for stocks, this is the natural result. The North Seton Colliery and others have been stopped, and others are mentioned as likely to be stopped soon. At Choppington the men have adopted a change in the mode of working of the greatest importance; they have agreed to cart the dead small coals (and often shale) got in the holing or casing back to be left underground. This is a return to the old system practised many years after the opening out of the Northumberland steam coal, about 1825. It is absolutely necessary to leave the coal, or, rather, rubbish, below, as it is of no service whatever to the coalowner. When this is done all that is necessary is to take the top coal down carefully, and then when the coals are passed over a screen they are fit for the market. The "Billy Fairplay" system has been tried to some extent, but it will, we believe, prove to be a failure here. No doubt it answers the purpose very well in Wales, but the seams of coal in this district are not exactly similar to those in Wales, there being considerable differences in the nature of the cleavage. Great expense has been incurred at Dudley and other places to get this system into operation. It has not, however, so far found favour either with the men or the masters, and it is very probable that it will ultimately be relinquished, and the old system adopted known as separation. There is, however, no reason why both systems should not go on together. There is another question now occupying the attention of the men and masters in the steam coal district—that is, the hours worked per day. The masters urge the men to work seven hours per day—that is, seven hours underground, and about six hours on the face of the coal. This question has an important bearing on the size, and consequently value, of the coal produced, as the hours named are barely sufficient to enable an able-bodied man to hole under the coal properly, and take the top coal down, nor a careful man, so as to produce this coal in a merchantable state. Notices have been sent to all the lodges in Northumberland asking them to vote on this question, and also to throw back the duff at those collieries where the "Billy Fairplay" system is in operation. The executive in their notices strongly urge the adoption of the proposal, and an opinion is gaining ground that the men will consent. The voting papers are expected to be returned to Newcastle by Saturday morning. The expected strike at Acomb Colliery has been happily averted, the men, acting under the advice of the Union officials, have agreed to go on with the work at the old rate of wages, and, looking at all the circumstances, this will generally be considered a very sensible decision.

NORTHERN INSTITUTE OF MINING AND MECHANICAL ENGINEERS.—The members of this institute have an excursion to-day (Thursday) to the Stonecroft, Greyside, and Settlingstones Lead Mines, and the Prudham Quarries, which is expected to be largely attended. These mines are situated near Fourstones, on the Newcastle and Carlisle Railway, 25 miles west west of Newcastle. A short description of the geological features of the district may be of interest. The group of lead mines between Haydon Bridge and the line of the Roman Wall is situated (geologically speaking) in the upper portion of the Bernician or carboniferous limestone series of Northumberland, the beds exposed lying between the Little Limestone above and the strata associated with the Great Whin Sill below. A walk from Fourstones station northwards to the Roman Wall on Limestone Edge exhibits the successive outcrops of the rocks in question admirably.

The Little Limestone coal (the same as that worked at Acomb Colliery) crops out at the railway station, and the dip of the beds being south to south east, and at a considerably greater angle than the slope of the country, every step towards Teppermoor takes one from higher to lower beds. We thus pass over the Great Limestone, in which are opened the large quarries at Fourstone and Prudham sandstone, also largely quarried; the Four Fathom Limestone, which is well seen in a small quarry in a corner of the Newbrough grounds just below the great quarries, and which here abounds in the curious fossil Saccammina Carteri Brady. Then come other conspicuous sandstones, and grits with limestones, until one of the latter is found lying immediately upon the great sheet of basalt which is so well known as the Great Whin Sill. The horizon occupied by the whin here is 400 ft. higher than that at which it stands at its next prominent outburst (well seen in the distance to the N.E. from Limestone Edge at Gunnerton Heugh.) In places the limestone capping the whin is seen to be separated from it by a thin bed of shale, and when this is the case the shale is seen very clearly so be burnt and baked by its proximity to the igneous rock. This, together with its change of horizons, even if unsupported by other facts, would be amply sufficient proof of the intrusive character of the Great Whin Sill. In the mines themselves, where the sheet of trap is faulted by the veins in the same manner as the sedimentary sandstones and limestones, the deceptive interbedded appearance of the whin is that which is best shown. Roughly speaking, the veins of the district as a whole, may be said to run in a broad band having a north-east and south-west direction, and lying between the Prudham and Carr Edge hills on the east, and Grindon hills on the west. The individual directions and throws of the vein are, of course, various, and it is only of their complicated network collectively that the above general statement is true. Of the veins little here need be said, but attention may, perhaps, be called to the following points, wherein they differ from those of the Alston and Derwent districts—their throws, as faults are frequently great, although taken together they in the end compensate one another, their hades are sometimes to the upthrow (or, in other words, they are sometimes reversed faults) and they frequently are very rich in carbonate, and (less markedly) in sulphate of barytes. The spar filling up vein cavities is generally carbonate of lime, and very rarely flour-spar. The great Fallowfield vein, which may be regarded as the advanced guard of the whole group, although it lies outside the limits mentioned, crosses the South Tyne in a line nearly, but not quite, parallel to that of the St. Oswalds basaltic dyke, a little below the Fourstones station. A great portion of the lead mining area, as above circumscribed, lies in a comparative hollow, which is more or less filled up with boulder clay. The re-assortment of this clay has given rise to detached patches of finer clay, suitable for tile making, &c., and which have been utilised in this manner at Fourstones, &c. A still newer deposit is that of ancient river gravels, which are beautifully seen on both sides of the South Tyne valley, rising in well shaped terraces to a height of 300 ft. or more. To the fossil hunter, the thick shale above the great limestone in the Fourstones Quarries, and the Four-Fathom Limestone in the small but rich Newbrough Quarry, are the chief attractions, whilst the mineralogist will find much to interest him in the beautiful specimens of witherite to be seen in the neighbourhood of the mines.—[A full account of the excursion will be given in next week's Journal.]

THE ELECTRIC LAMP.—Large consumers of light who have occasion to complain of their gas bills, and believe that the evil lies deeper than the registering apparatus of their meters, may be interested to learn that gas is not indispensable to the brilliant and economical illumination of their factories and workshops. For general illuminating purposes, especially in small areas, coal-gas undoubtedly offers great advantages in the facility with which it may be applied, and the safety and steadiness of the light it affords, but where large areas are in question and perfect and unbroken uniformity of light is not indispensable, gas is far surpassed not only in brilliancy but in economy by the electric lamp. This invention, which has long since taken root in America, is rapidly making its way on the Continent, and especially in France, where the manufacture of electric lighting apparatus is already an important industry. One serious objection which was formerly urged against the use of this concentrated light—namely, the density of the shadows cast on the reserve of the illuminated objects—has been successfully met, we are told, by the employment of two lights in juxtaposition, so as to neutralise one another's shadows, and by the introduction, where needed, of diffusing glass, &c. The apparatus is now rapidly growing in favour both for in-door and out-door purposes; and in most of the larger workshops factories, foundry yards, quays dockyards, &c., of France it appears to have certainly superseded gas. On the score of economy the advantages of the electric lamp are certainly considerable, though the first cost of the apparatus will always prevent its adoption for small buildings, to which it is in some respects unsuited. In France the expense of the apparatus, including lamp, magneto-electric machine, wires, &c., is about 96*l.*, but once erected, the cost of maintenance, including the combustible carbon points and all incidentals, does not exceed on the average 6d. per hour. Such, at least, is the experience in the Gramme Company's workshops, where these lamps have been in constant use for the last four years. Their principal workshop, which is 16 ft. in height, and 1468 square feet in superficial area, was formerly lit by 24 gas burners, but a single electric lamp now suffices to give a vastly better light, and at a much smaller cost. At the Du Commun works at Mulhouse, the foundry which has an area of nearly 16,000 square feet was formerly lit in a very imperfect manner by 250 gas burners. Perfect illumination is now supplied by four electric lamps attached to cross beams, at a height of 16 ft. from the floor, and worked by a single Gramme machine. The first cost of the apparatus here was 400*l.*, or about the same as that of the 250 gas burners which it replaced, and the light afforded by the four lamps is fully equal to that of 400 burners. As a general rule, we are told one lamp will illuminate sufficiently an area of 5120 square feet in a machine shop, half that area in a printing or weaving establishment, and four times that area on a quay, ship-yard, or other locality where fine work is not carried on. The use of the light, however, is still attended with one disadvantage. Each lamp burns ordinarily from three and a half to four hours, when new carbons must be inserted. The operation requires only a few seconds; but it, nevertheless, involves a break in the lighting of the room, and a consequent interruption of work, unless a second lamp be in use. The electric light, it will be seen, is better adapted for the illumination of ironworks, railway stations, dockyards, mines, and large rooms than for average factories or private premises.

RAILWAY WAGONS.—In order to facilitate the use of the same wagons at one time for the conveyance of goods and at another for the conveyance of cattle, Mr. J. JOHNSTONE, of Dunmanway, Cork, proposes to provide each of such wagons with movable flooring battens; these battens may be made of oak of the usual dimensions, framed together by iron plates, or of other suitable material. These frames are hinged to the bottom or lower part of the wagon, so as to be readily laid on to the flooring of the wagon when the wagon is intended for the time to convey cattle, and when the wagon is for the time to be used for the conveyance of goods or merchandise these frames are turned up against the opposite ends or other parts of the wagon. These frames of battens may be in two parts, meeting together when folded down on the wagon floor, and held by a simple screw and staple, or bolt, or they may be formed in other number of parts. By these means, amongst other advantages, the same wagons may be used for the conveyance of either cattle or goods at a very short notice. Increased facility is also afforded for the cleansing of the floors of the wagons, as well as for the repairs of broken bottom boards.

FOREIGN MINES.

PROVIDENTIA AND NEW ROSARIO.—M. V. Cummins, Sept. 14: With respect to the stopes in San Diego I have no change to report in the actual appearance of the lode, since precisely the same class ores have been obtained as we have now been having for some time past; but at the same time I am glad to state that the ore is steadily lengthening southward. We are carrying the same two stopes referred in my last letter, and one of them is now within about 2 varas of the north end of the shaft, and the other about 4 varas (about 11 ft.), the ore in both continuing to look as well, if not better, than it did. The ore will pass to the west of the shaft, and although it may be too soon to form a reliable opinion, we believe that the ore in these stopes will hold back south of the shaft as far as under the San Pedro workings. In the level north of the winze the ground has continued very favourable for driving, and the men have driven 14 varas (about 38 ft.) since the date of my last report. The end is now 53 varas (about 146 ft.) north of the shaft, and the level is consequently of the same length as that of San Guillermo. As the board are aware, this level has been driven on an acute angled junction formed by an eastern underlayer with a western, and in my last letter I expressed it as my opinion that the junction might be expected to hold for a distance of about 15 or 20 varas (41 to 55 ft.)

At or about 18 varas the eastern wall of the western underlayer came out from the east, and appeared as if it were going to cross the other lode, but almost immediately after we intersected the narrow Encarnacion vein, which heaved both lodes to the west in the same manner that it did the 55 vara level of San Guillermo. The lodes were not heaved very far, and as the ground was favourable for driving we quickly regained our position on them. Both lodes appear now to be taking their two respective courses, and it is probable that they will separate within 5 or 6 varas (from 13 to 16 ft.) The eastern underlayer appears to be a fine large lode, and will, I think, be found very productive when separated from the influences of the other lode. The good ore in the lode is not yet sufficiently plentiful to enable me to say that we have a payable end, but a few good stones can be picked out from what is broken. One stone that was sent to Mr. Parres this morning assayed 28 mcs. 50 ct. (about 38 guineas per ton). The total extraction since the date of my last letter amounts to 145 cargas (about 21 tons), worth about 9 mcs. (9*l.* 9*s.* per ton.—Hacienda: Mr. Ivey has obtained up to date from the barrels 420 lbs. of pella, which should yield about 130 mcs. of silver (about 20*l.*). He now 110 cargas (16 tons) of white ore in the patio towards the formation of other torta.

[For remainder of Foreign Mines, see to-day's Supplement.]

COAL MINES REGULATION ACT, 1872.

EXAMINATION FOR MANAGERS' CERTIFICATES OF COMPETENCY.

DISTRICT UNDER THE CHARGE OF THOS. E. WALES, Esq., H.M. INSPECTOR OF MINES.

PERSONS desirous of being EXAMINED in this District for MANAGERS' CERTIFICATES OF COMPETENCY, under the above Act, should at once communicate with the Secretary to the Board of the mentioned District, at the following address.

By order of the Board,
C. H. JAMES, 8, Courtland-terrace, Merthyr Tydfil, Secretary.

N.B.—Persons who do not reside within the District are equally eligible for examination with those who do.

THE NATIONAL ASSOCIATION OF COLLIERY MANAGERS.

A MEETING held at the Brunswick Hotel, London road, Leicester, on Saturday, the 6th instant, a Secretary and Treasurer were appointed to act with the Committee previously elected.

AN ADJOURNED MEETING will be HELD at the same Hotel on Saturday, the 20th instant, at 3·30 P.M. prompt.

The Association is open to all Certificated Colliery Managers in the United Kingdom.

Colliery Managers desirous of becoming Members will please communicate with one of the undersigned, viz.—

R. HENRY NORTON, Sec. pro tem., Ravenhead, St. Helens, Lancashire.
J. ROTHERY, Cutsyke, Castleford, Yorkshire.

THE MINING INSTITUTE OF CORNWALL.

EXHIBITION AND CONVERSAZIONE.

THE FIRST EXHIBITION of MODELS of IMPROVED MINING MACHINERY, SCIENTIFIC APPARATUS, MINERALS, &c., in connection with the above Institute, will be HELD on the 22nd 23rd November next, at the Assembly Rooms, Camborne.

Applications for space by intending exhibitors, and further particulars, may be had by applying to—

THOMAS B. PROVIS, General Secretary.
Fore-street, Camborne.

THE MINING INSTITUTE OF CORNWALL.

THE MECHANICAL COMMITTEE invites all INVENTORS and POSSESSORS of MODELS of MACHINES applicable to MINING PURPOSES to communicate with me, with a view of EXHIBITING THEM AT CAMBORNE, on the 22nd and 23rd of November next.

A Certificate of Merit will be awarded by the Council.

There will be no charge for space, but a small commission on all articles sold.

WILLIAM TEAGUE, Jun.,
Secretary of Mechanical Department.

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The Advertiser has opened the ground towards the lodes, but can proceed no further without additional capital. A few thousand pounds would thoroughly develop the sett, which has been examined and favourably reported on by experienced Mining Engineers. Arrangements would be made either to WORK the MINE PRIVATELY, or the Advertiser would treat with a Gentleman of influence and means to BRING OUT a COMPANY in a *bona fide* manner. All necessary information given; investigation courted.

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THE TRANSVAAL.

THE BLUE BANK GOLD REEF.—FIFTY THOUSAND POUNDS REQUIRED to WORK this GOVERNMENT CERTIFIED GOLD REEF: £1700 has already been expended in its development, and from careful surveys by competent authorities a very large property may be expected.

The proven claims extend 1050 ft. along the Reef, by 200 ft. wide, and a full Government title is guaranteed, according to the Gold Law of the Colony.

Messrs. Johnson, Matthey, and Co., Assayers to the Bank of England, Her Majesty's Mint, &c., give a high opinion of the value of the quartz, and the Reef has been fully inspected by a mining captain in whom they have entire confidence.

The money is wanted in sums of not less than £250, half of which is only now called, and every shilling shall be expended purely and solely for necessary machinery and appliances under the eye of an agent to be appointed by the subscribers.

The undersigned will hand over in trust for the subscribers a free Government grant of 320 acres of fine farm land as a security for the *bona fides* of the undertaking, until its genuineness has been proved.

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Belonging to the said company, and being within and upon the said Mine, and comprising—

ONE 40 in. cylinder PUMPING ENGINE, with ONE BOILER, 10 tons.
ONE 4 horse power ENGINE and BOILER, with CRUSHER attached.

Large shears and two shieves, 8-arm capstan, capstan rope, a quantity of 9, 11, 12, and 15 in. pumps, 11 in. main rods, rod plates and bolts, 2¼ in. and 1½ in. iron rods, iron stave ladders, 5 in. pole and lift for condensing water, two horse whims, shaft tackle and shieves, several whim and other kibbles, winch, large quantity of launders, railroad and stands, dressing floors, two jigging machines and hutches, frames and sieves, several wood houses, quantity of chain, wire and hemp ropes, smiths' bellows, vices, anvil, jacks, and tools, smiths' and miners' tools, grindstone, screw stock, taps and plates, beams, scales and weights, a quantity of new and old iron, powder cans, brass, new and old timber, miners' dial, account-house furniture, and a quantity of other materials and effects in general use in mines.

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THEREON, CONSISTING OF—

ONE 70 in. cylinder PUMPING ENGINE, stroke 10 ft. by 9, with THREE BOILERS, 36 tons, and iron balance bob.

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1 12 armed capstan.
200 fms. 15 in. capstan rope; about
500 fms. steel wire rope, from 1¼ to 2 in.
40 20 in. pumps.
3 18½ in. working.
3 18 in. windbores.
30 15 in. pumps.
1 15 in. H piece and doorpiece.
1 15 in. windbore.
1 13 in. pole, with stuffing box and gland.

20 fms. 13 in. pumps, with working barrel, windbore, and door; 14 fms. 10 in. pumps, with working bottom complete; 20 fms 6 in. pumps, with plunger bottom complete; 40 pairs fangotted strapping plates, from 6 in. to 9 in.; 40 fms. 15 in. rods; 30 fms. 2 in. bucket rods; 18 in. buckets and forms; seatings and clacks; rod and flange bolts; staples and glands; link chains; shaft rolls; drop screws; underground balance bob; cisterns; 200 fms. ladders; smiths' and miners' tools in variety; winch lifting jacks, &c., &c.

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Annan, Sept. 26, 1877. WILLIAM DOBBIE, Secretary.

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Prices—	½ in.	⅜ in.	½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.
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Gun Metal Stuffing Box, Expansion Joints for long lengths of Piping—

½ in., 4s.; ¾ in. 6s.; 1 in., 8s.; 1¼ in., 11s.; 1½ in., 14s.; 2 in., 21s. each.

Gun Metal Safety Valve, with Lever—

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Gun Metal Steam Whistle—

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1½ in.	2 in.	2½ in.	3 in.	4 in. diameter of Globe.
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Set of Gun Metal Gauge Mountings, ebony handles, ordinary pattern. ½ in glass ... ... Per set	16s.
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12	3 9	4 6	5 4	6 8	8 0 per doz.
13	4 0	5 0	6 0	7 4	8 8 ,,
14	4 3	5 6	6 8	8 0	9 4 ,,
15	4 6	6 0	7 4	8 8	10 0 ,,
16	4 9	6 6	8 0	9 4	10 8 ,,
17	5 0	7 0	8 8	10 0	11 4 ,,
18	5 3	7 6	9 4	10 8	12 0 ,,
19	5 6	8 0	10 0	11 4	12 8 ,,
20	5 9	8 6	10 8	12 0	13 4 ,,
21	6 0	9 0	11 4	12 8	14 0 ,,
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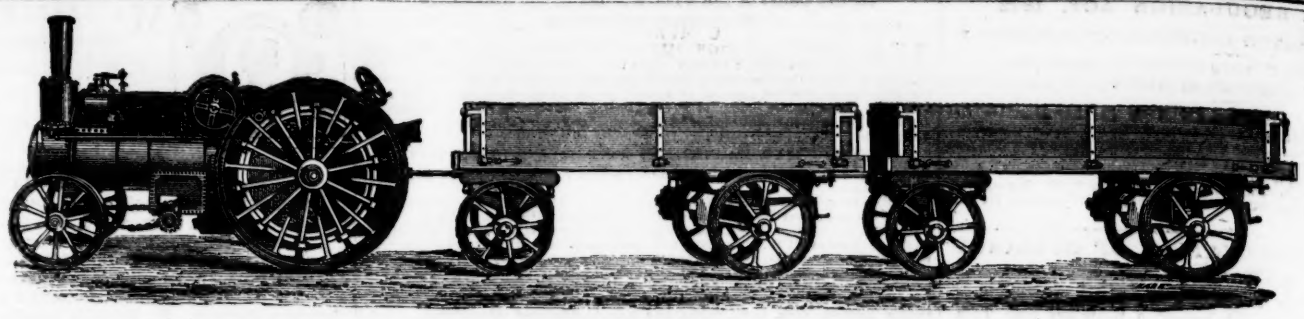

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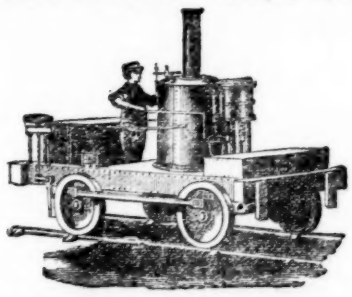

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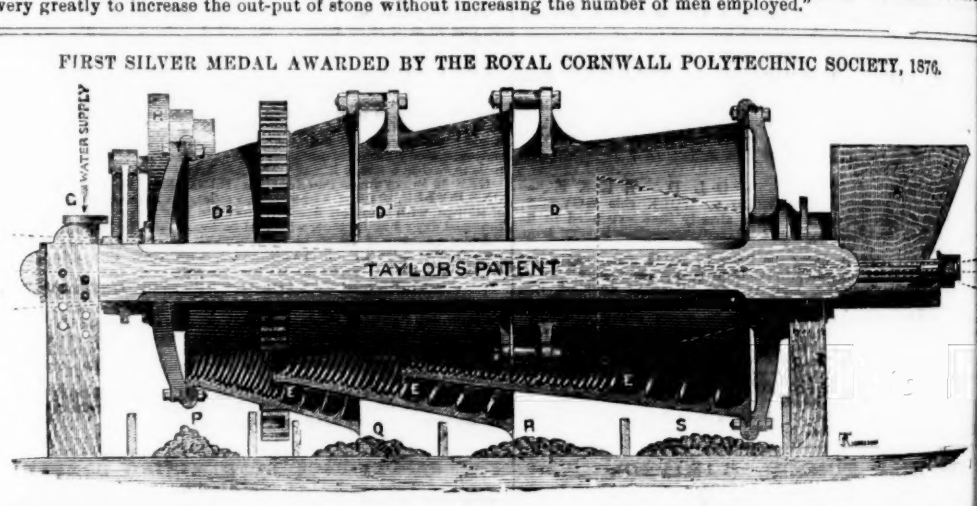

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FOR SEPARATING AND SIZING MINERAL AND OTHER SUBSTANCES.

By the aid of this invention any materials, which are of different specific gravity, can be concentrated and sorted mechan while in the case of ores the fine mineral is brought up with the larger particles instead of being washed into the waste important feature.

This machine uses very little water in proportion to the quantity of material treated, and will be found a most useful a cient dressing apparatus.

For further particulars, and to see machines at work, apply to the Patentee,

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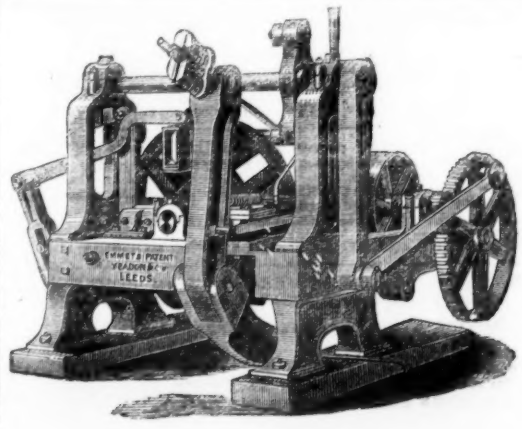

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THE MINING SHARE LIST.

BRITISH DIVIDEND MINES.

Shares.	Mines.	Paid.	Last wk.	Clos. pr.	Total divs.	Per sh.	Last pd.
1 00	Alderley Edge, c, Cheshire*	10 0 0	—		12 11 8	0 5 0	Jan. 1876
15000	Balmynheer, t, Wendron (4000 to is.)	1 0 0	—		0 2 0	0 2 0	Nov. 1875
300.0	Bampfylde, c, i, mn., Devon*	1 0 0	1⅝	1⅜ 1⅝	0 2 0	0 2 0	June 187
4000	Brookwood, c, Buckfastleigh	1 16 0	1	½ 1	3 16 0	0 2 0	Nov. 1877
2000	Bryn Alyn,* l, Denbigh. (10l. sh.)	8 0 0	—		0 7 0	0 7 0	Jan. 1875
5400	Cashwell, l, Cumberland*	2 10 0	2¾	2 2¾	1 9 6	0 2 0	Aug. 1876
1000	Carn Brea, c, t, Illogan†§	56 7 6	39	37 39	398 0 0	1 0 0	Feb. 1874
2450	Cook's Kitchen, t, Illogan†§	23 17 3	2½	1½ 2	11 17 0	0 7 6	Jan. 1873
10240	Devon Gt. Consols, c, Tavistock†*	1 0 0	3½	3 3½	116 15 0	0 5 0	July 1877
4296	Dolcoath, c, t, Camborne	10 14 10	37	35 37	111 16 3	0 5 0	Sept. 1877
6000	East Black Craig,* l., Scotland	5 0 0	—		0 10 0	0 10 0	Feb. 1877
400	East Darren, l, Cardiganshire	32 0 0	—		235 10 0	1 0 0	Aug. 1876
6 00	East Pool, t, c, Illogan	0 9 9	8	9 9½	15 2 3	0 2 0	June 1877
40 00	Glasgow Cara., c* [30,000 £1 p., 10.000 15s. p.]		1¼	1 1¼	0 12 10	0 0 6	Mar. 1877
7500	Gorsedd and Merllyn Cons., l, Flint	2 10 0	6½	5¾ 6¼	0 5 0	0 5 0	Aug. 1877
15000	Great Dyliffe,* l, Montgom	4 0 0	4	1¾ 2¼	0 2 6	0 2 6	Apr. 1876
15000	Great Laxey, l, Isle of Man*	4 0 0	21½	20 21	22 13 0	0 10 0	Oct. 1877
615	Gt. Retallack, l, bl, Perranzabuloe	5 15 6	—		0 1 6	0 1 6	May 1876
25000	Gt. West Van, l, Cardigan,* pref.	2 0 0	⅜	¼ ⅜	0 2 0	0 1 0	Aug. 1874
6400	Green Hurth, l, Durham*	0 6 0	3	2¾ 3	1 15 0	0 3 0	Aug 1877
20000	Grogwinion, l, Cardigan*	2 0 0	3½	2½ 3½	0 12 0	0 4 0	Feb. 1877
9830	Gunnislake (Clitters'), t, c	5 5 0	2¾	2½ 2¾	0 13 9	0 1 0	Oct. 1876
1024	Herodsfoot, l, near Liskeard†	8 10 0	6½	6 6½	62 5 0	0 15 0	Oct. 1872
18000	Hingston Down, c, Calstock*†	0 4 0	½	⅜ ½	0 1 0	0 1 0	Nov 1875
60000	Holmbush, a, c, s-l, Callington*	1 0 0	2	1¾ 2	0 3 6	0 2 6	July 187
2400	Isle of Man, l, Isle of Man*†	25 0 0	—		82 5 0	0 10 0	Feb. 1876
20000	Leadhills,* l, Lanarkshire	6 0 0	5½	5 5½	0 12 0	0 6 0	Oct. 1877
400	Lisburne, l, Cardiganshire	18 15 0	80	75 80	582 10 0	1 0 0	July 1877
14000	Llanidloes,* l, Montgomery	3 0 0	2½	1 2	0 9 0	0 4 6	Nov. 1876
5120	Lovell, t, Wendron	0 16 0	—		0 17 6	0 1 6	Jan. 1874
9000	Marke Valley, c, Linkinhorne	5 3 6	1	⅝ ¾	7 15 0	0 2 0	Jan. 1876
9000	Minera Mining Co., l, Wrexham*	5 0 0	19½	18 20	67 5 2	0 5 0	Aug. 1877
20000	Mining Co. of Ireland, cl, c, l*	7 0 0	—		23 11 6	0 3 6	Jan. 1876
444	North Busy, c, Chacewater	3 9 6	5	4 5	1 10 0	1 0 0	July 1877
10289	North Hendre, l, Wales	2 1 0	—		1 12 6	0 2 6	Aug. 1877
6000	Pedn-an-drea Con., t, Redruth	0 8 6	7⅛	6⅞ 7⅛	0 9 0	0 9 0	June 1877
5000	Penhalls, t, St. Agnes	3 0 0	⅜	¼ ⅜	3 18 6	0 2 0	July 187
6000	Pennant, l, bar, North Wales*	5 0 0	5½	5 5½	0 5 0	0 5 0	Mar. 1877
45,93	Penstruthal,* t, c, Gwennap	9 0 0	¼	⅛ ¼	0 2 8	0 0 8	Nov. 1875
12000	Phœnix, & W. Phœnix, t, c, Link.§	5 7 3	4	4½ 5	2 9 6	0 4 0	Nov. 187
16000	Prince Patrick,* s-l, Holywell	1 0 0	2¼	1¾ 2¼	0 14 0	0 1 3	Jan. 1876
12000	Roman Gravels, l, Salop*	7 10 0	8½	8¼ 8½	7 10 0	0 8 6	May 1877
512	South Caradon, c, St. Cleer	1 5 0	100	90 100	739 10 0	1 0 0	Oct. 1877
6123	South Condurrow, t, c, Camborne‡	6 5 6	8½	8 8½	2 18 0	0 6 0	Sept. 1877
12000	St. Harmon,* l, Montgom	3 0 0	3½	2¾ 3½	0 3 0	0 3 0	Jan. 1877
1000	So. Pr. Patrick,* s-l.(8000 sh. issued)	1 0 0	—		0 7 0	0 1 0	Oct. 1875
1000	Tankerville, l, Salop*	6 0 0	5½	5 5½	4 17 0	0 5 0	Dec. 1876
6000	Tincroft, c, t, Pool, Illogan†	9 0 0	16	15 16	50 8 6	0 5 0	May 1877
15000	Van, l, Llanidloes*	4 5 0	32	30 32	22 3 6	0 12 0	Oct. 1877
3000	W. Chiverton, l, Perranzabuloe†	12 10 0	16	14 16	55 0 0	0 10 0	Jan. 1877
1783	West Poldice, St. Day	10 0 0	13	11 13	1 19 0	0 4 0	July 1876
512	West Tolgus, c, Redruth	95 10 0	77	75 77	22 5 0	1 10 0	Aug. 1877
2048	West Wheal Frances, t, Illogan	18 1 3	4½	4 4½	3 12 6	0 5 0	Oct. 1872
12000	West WyeValley,* l, Montgom	3 0 0	3	2 3	0 6 0	0 3 0	Nov. 1876
1024	Wh. Eliza Consols t, St. Austell	20 0 0	—		15 0 0	2 0 0	Aug. 1877
2048	Wheal Jane, t, Kea	2 13 10	1	1¾ 1⅝	8 5 0	0 5 0	July 1875
4295	Wheal Kitty, t, St. Agnes	5 4 6	2	1¾ 2¼	11 19 6	0 2 6	Dec. 1874
25000	Wh. Newton, a, c, s, t, Calstock*	1 0 0	5½	5 5½	0 4 6	0 4 0	June 1877
80	Wheal Owles, t, St. Just§	86 5 0	80	75 80	522 10 0	4 0 0	Aug. 1872
6000	Wheal Prussia, t, Redruth	2 0 0	4¾	4½ 4¾	0 4 0	0 1 0	July 1877
25000	Wicklow c, sul, l, Wicklow	2 10 0	—		52 9 0	0 2 6	Mar. 1872
10000	Wye Valley, l, Montgomery*	3 0 0	3	2 3	0 10 6	0 4 6	Oct. 1876

FOREIGN DIVIDEND MINES.

Shares.	Mines.	Paid.	Last wk.	Clos. pr.	Total divs.	Per sh.	Last pd.
35500	Alamillos, l, Spain*†	2 0 0	1¼	1¼ 1¾	1 18 3	0 1 0	Oct. 1877
30000	Almada and Tirito Consol., s*†	1 0 0	½	¼ ½	0 6 3	0 1 0	May 1876
20000	Australian, c, South Australia†	7 7 6	2	1½ 2	0 19 6	0 1 3	July 1877
10000	Battle Mountain,* c, (6240 part pd.)	5 0 0	—		0 10 0	0 10 0	Nov. 1873
15000	Birdseye Creek, g, California*	4 0 0	¾	½ ¾	0 14 0	0 2 6	June 1874
12320	Burra Burra,* c, So. Australia	5 0 0	—		70 0 0	0 10 0	Oct. 1872
20000	Cape Copper Mining,*† So. Africa	7 0 0	37	35 37	28 15 0	1 0 0	June 1877
40000	Cedar Creek, g, California*	5 0 0	⅜	⅜ ⅝	0 5 0	0 2 6	June 1873
35000	Cesena Sul. Co., Romanga, Italy*	10 0 0	—		0 10 6	0 3 0	Aug. 1877
15000	Chicago, s, Utah*	10 0 0	1¼	1 1¼	2 8 0	0 4 0	Nov. 1876
65000	Colorado United, s-l, Colorado*†	5 0 0	2	1½ 2	0 13 6	0 4 0	Jan. 1875
10000	Copiapo, c, Chili* (£20 shares)	16 15 0	—		7 11 5	0 3 0	May 1877
100000	Don Pedro North del Rey*†	0 18 0	⅜	⅜ ⅝	3 5 9	0 2 0	Mar. 1873
23500	Eberhardt & Aurora, s, Nevada*†	10 0 0	5	4½ 5	1 8 0	0 3 0	Dec. 1876
70000	English & Australian, c† S. Aust.	2 10 0	1½	1¼ 1½	2 15 9	0 1 0	Mar. 1877
30000	Flagstaff, s, Utah*	10 0 0	2¼	2 2½	4 2 0	0 5 0	July 1873
25000	Fortuna, l, Spain*†	2 0 0	5½	5 5½	6 14 10	0 6 8	Oct 1877
55000	Frontino & Bolivia, g, New Gran.*†	2 0 0	3½	2¾ 3½	0 1 0	0 1 0	June 1876
30000	Gold Run, hyd.	1 0 0	—		0 2 4	0 0 4	Oct. 1872
68000	Kapunda Mining Co. Australia†.	1 3 0	—		0 2 4	0 0 6	June 1873
20000	Last Chance, s,* Utah	5 0 0	1	¾ 1	0 14 0	0 2 0	July 1873
15000	Linares, l, Spain*†	3 0 0	6½	6¼ 6¾	17 3 10	0 6 8	Oct 1877
65000	London and California, g*†	2 0 0	¾	½ ¾	0 1 0	0 1 0	July 1875
7837	Lusitanian, Portugal*† (£5 sh.)	3 10 0	—		1 11 6	0 1 6	Mar. 1873
5000	Mamm Copperopolis of Utah, c, s	10 0 0	—		0 5 0	0 5 0	Dec. 1872
5000	Mountain Chief, s, Utah*	10 0 0	—		0 4 0	0 4 0	Jan. 1873
10000	Pontgibaud, s-l, France†	20 0 0	28	26 28	23 1 1	1 11 1	Nov. 1876
100000	Port Phillip, g, Clunes*†	1 0 0	⅝	½ ⅝	1 9 0	0 1 0	Sept. 1877
54000	Richmond Consols, s, Nevada*†	5 0 0	6	5¾ 6¼	3 9 0	0 7 6	Oct. 1876
40000	Santa Barbara,* g, Brazil	0 10 0	2	1¾ 2	0 3 9	0 1 3	May 1877
120000	Scottish Australian Mining Co.*†	1 0 0	2	1¾ 2⅛	15 per cent.		June 1877
80000	Scottish Austral. Mining Co., New	0 5 0	¾	⅜ ¾	15 per cent.		June 1877
112500	Sierra Buttes, g, California*†	2 0 0	1½	1¼ 1¾	1 18 0	0 2 0	Oct. 1877
60000	Sorsh Aurora, s, Nevada*	5 0 0	¾	½ ¾	0 14 2	0 2 0	Nov. 1873
£253000	St. John del Rey*† (£5 stock & multiples dealt in)			325 335	½ year	20 p. ct. for	Dec. 1876
20000	Tolima, g, s* So. America	5 0 0	—		0 11 6	0 6 6	May 1874
25000	Victoria (London)*, g, Australia	1 0 0	¾	⅜ ¾	0 11 10½	0 0 10	Aug. 1876
15000	Western Andes, s,* New Granada	5 0 0	—		12 per cent. per an		July 1876
21000	W. Prussian(5500 pref. sh. 10l. pd)	10 0 0	11¼	10¾ 11¼	1 4 0	0 8 0	April 1877

NON-DIVIDEND FOREIGN MINES.

Shares.	Mines.	Paid.	Last Pr.	Clos. Pr.	Last Call.
5000	Anguilla Phosphate, West Indies (4000 issued)	10 0 0	—		Fully pd.
12000	Argentine, g, Argentine Republic	5 0 0	2½	2 3	Fully pd
3000	Bellavista, s, Peru* (£10 shares)	10 0 0	—		Fully pd
30000	Blue Tent, hyd., California	5 0 0	3¼	3 3¼	Fully pd
49935	Chontales, g, s, Nicaragua*†	2 0 0	⅜	¼ ⅜	Fully pd
16000	Condes of Chili, s-l	5 0 0	3	2¼ 3	Fully pd.
20000	English Australian, g, Victoria*	0 10 0	⅞	⅝ ⅞	Fully pd
35000	Excelsior Hydraulic Gold Washing Co., California*	6 0 0	—		Dec. 1871
100000	Exchequer, g, s, California*†	1 0 0	⅜	¼ ⅜	Fully pd
40000	Holcombe Valley, g,* California	1 0 0	—		July 1873
8000	Hornachos,* s-l, Spain	10 0 0	13	12 13	Fully pd
12000	Hultafall,* l, bl, Orebro, Sweden	5 0 0	5½	5¼ 6	Fully pd
12000	Hunter Consolidated, s-l, Utah	6 0 0	6	5½ 6¼	Fully pd
2000	Imperial Brazilian Collieries, Brazil*	5 0 0	—		Fully pd
0000	I. X. L., g, s, California*	1 0 0	½	⅜ ½	Fully pd
50000	Javali, g, Nicaragua*	2 0 0	½	⅜ ½	Fully pd
3500	La Manche, l, Newfoundland	10 0 0	—		Fully pd.
12000	Lanestosa,* l, s, Viscaya, Spain (£2 shares)	1 15 0	—		Mar. 1876
75000	Malabar, g, Colombia* (67165 issued)	1 0 0	⅜	⅜ ⅜	Fully pd.
40000	Malpaso, g, Colombia* (7400 pref. shares, fully paid)	1 0 0	¾	⅝ ¾	Fully pd.
1000	Menzenberg, c, Honnef, Germany*	5 5 0	—		Fully pd
4588	New Bensberg, i, l, Germany	5 0 0	—		Nov. 1876
6000	New Quebrada, c, Venezuela*	5 0 0	2½	1¾ 2½	Fully pd.
2000	New Zealand Kapanga, g, Coromandel*	5 0 0	1¼	1 1¼	Fully pd.
3000	Oregon,* g, Oregon, U.S. (preference shares)	4 0 0	—		Sept. 1875
5000	Panulcillo, c, Chili*† (£50000 debentures)	4 0 0	1¼	¾ 1¼	Fully pd.
8000	Pestarena United, g, Italy*†	3 0 0	½	⅛ ½	Fully pd.
5000	Providencia and New Rosario, s, Mexico*	1 0 0	—		Fully pd.
80000	Rica, g, Colombia* (40000 issued)	1 0 0	¼	⅛ ¼	Fully pd
£2,151,000	Rio Tinto,* c, Huelva, Spain	Stock	58½	56 57	Fully pd
100000	Rossa Grande, g, Brazil*† (£1 shares)	0 19 0	½	½	July 1872
30000	Russia Copper, Orenburg and Ufa*†	10 0 0	2¼	1¾ 2¼	Fully pd.
35000	San Pedro, c, Chili*	2 0 0	⅝	⅜ ⅝	Fully pd.
10000	Silver Plume, s, Colorado*	1 0 0	—		Fully pd.
30000	Tecoma, s, Utah*	10 0 0	½	¼ ½	Fully pd.
20000	Thornhill Reef, g, Australia*	1 0 0	—		Fully pd.
43174	United Mexican, s, Mexico*†‡	28 15 3	2	1½ 2	May 1875
14000	Utah, g, s-l, Utah*	5 0 0	—		Fully pd.
75000	Yorke Peninsula, c, South Australia	1 0 0	⅜	⅛ ⅜	Fully pd.
40000	Yorke Peninsula, c, South Australia Preference	1 0 0	1	¾ 1	Fully pd.

§ Have made calls since last dividend was paid.

FOREIGN AND MISCELLANEOUS STOCKS, BONDS, LOANS, AND TRUSTS.

	Closing Prices.	
Argentine, 1868, 6 per cent.	68	70
Bolivia, 6 per cent.	23½	21½
Brazilian, 1865, 5 per cent.	93	95
Chilian, 1866, 7 per cent.	100	103
City of Providence, 5 p.c. coupon bnds	98	100
Egyptian, 5 per cent. pref.	55½	56¼
Do., unified debt, scrip	34¼	34¾
Do., 7 per cent., V.M.L.	67	69
Do., 9 per cent. guar.	73	75
Do., 7 per cent., K.M.L.	42½	43¼

	Closing Prices.	
Foreign and Col. Gov. Trust, 6 p. ct.	65	70
Do., 5 per cent., 2d issue	52	57
Do., 6 per cent., 3d issue	50	55
Do., 1872, 4th issue	45	50
Do., 1873, 5th issue	46	51
Peruvian, 1870, 6 per cent.	13¼	13¾
Do., 1872, 5 per cent	11¼	1.¾
Russian, 5½ per cent. L. Mort.	—	
Spanish, Quicksilver Mort., 5 p. ct.	95	97
United States Mort., 6 per cent.	96	98

NON-DIVIDEND MINES.

Shares.	Mines.	Paid.	Last wk.	Clos. pr.
40000	Aberdaunant, l, Llanidloes*	1 0 0	1⅜	1⅛ 1⅜
10000	Aberystwith,* s-l, Cardigan	5 0 0	—	
80	Albion,* l, Cornwall	100 0 0	—	
7800	Alvig. & Burng.,* t, St. Aust.	3 0 0	3	2½ 3
18000	Ambrose Lake, t, c, Liskeard	1 18 6	—	
12000	Assheton, l, Carnarvonshire*	5 0 0	1½	1 1½
50000	Ballycummisk,* c, Schull	2 0 0	—	
10000	Bedford United, c, Tavistock	2 0 6	⅜	⅛ ⅜
28000	Belstone,* c, Devon (27,000 fy. pd.)	1 0 0	—	
15000	Blaen United,* s-l, Cardigan	1 0 0	—	
3937	Blue Hills, t, c, St. Agnes	3 7 6	—	
30000	Bodidris,* l, bl, Denbighshire	1 0 0	1¼	1 1¼
1000	Bollihope Vale,* s-l, Durham	5 0 0	5⅜	5 5⅜
200	Botallack, t, c, St Just‡	121 5 0	17½	15 17½
2000	Bowden Hill,* mn	1 0 0	—	
6000	Bradwell Moss Rake	1 0 0	1	¾ 1
30000	Caldbeck Fells, l, Cumberland*	2 0 0	—	
50000	Cambrian,* s-l, c, Cardiganshire	2 0 0	2¼	2 2¼
3348	Cargoll, s-l, Newlyn‡	6 14 0	3½	2¼ 2¾
10000	Caron, l, Cardigan*	2 0 0	2¾	2¼ 3
40000	Central Foxdale, l, I. of Man*(2l. sh.)	1 5 0	—	
10000	Central Van,* l, bl, Llanidloes	5 0 0	—	
128	Clementina, l, Llanrwst	20 0 0	—	
7500	Combellack,* t, Wendron	2 0 0	2	1½ 2
6000	Combmartin, s-l, North Devon	0 7 0	¼	⅛ ¼
24000	Court Grange, s-l. (6000 sh. 10s. pd.)	1 0 0	1⅝	1⅜ 1⅝
20000	Cwm Dwyfor,* c, s-l, Carnarvonsh	0 18 3	—	
5	Cwm Lanarch,* s-l, Carnarvon	2 0 0	2½	2¼ 2½
3000	Cwmystwith (New) [5l. shares]	4 0 0	—	
512	D'Eresby Mountain, l, bl, Llanrwst	20 0 0	—	
10000	Denbighshire Consolidated, l*	3 0 0	2	1 1½
12000	Derwent,* l, Durham	4 0 0	—	
10000	Dubby Syke, l, Durham*	0 12 6	½	½
6144	East Caradon, c, St. Cleer‡	2 16 6	¾	¾ 1
4000	East Chiverton, l, Perranzabuloe	6 17 0	2½	2 2½
3000	East Craven Moor, l, Pateley Bridge	10 0 0	11	10 11
8000	East Goginan, l, Cardigan	2 0 0	—	
8000	East Van, l, Llanidloes*	5 0 0	3¼	3¼ 3½
1722	East Wh. Lovell, t, Helston	8 11 0	1⅛	1 1⅛
20000	Elgar,* s-l, Cardiganshire	1 0 0	1¼	1 1¼
8000	Fronvellan, l, Mont.* [4000 sh. fy. pd.]	1 0 0	—	
3950	Gawton, c, Tavistock	4 5 6	⅜	⅛ ⅜
12000	Glan Clwyd,* l, Gwyddelwern	1 0 0	—	
14000	Glenroy,* s-l, Isle of Man	4 0 0	1	¾ 1
10000	Glyn,* l, Llanidloes	2 0 0	⅜	⅜ ½
12000	Goginan, & Level Newydd, Card., l	2 10 0	—	
100000	Gold, g, Merionethshire	1 0 0	—	
30000	Goreu,* s-l, Carmarthen	1 0 0	1¼	1⅛ 1¼
20000	Gt. E. Foxdale, l, I. of Man (1l. sh)	0 18 0	—	
12000	Great Holway,* l, Flintshire	5 0 0	6	5 6
9500	Great Pant-y-Pydew, l, Holywell	2 0 0	—	
6000	Gt. Wheal Eleanor, t, North Bovey.	1 0 0	3	2 3
18000	Grosvenor, l, Holywell (£1 sh.)	0 15 0	—	
10000	Harehope Gill,* l, Durham (£1 sh.)	0 5 0	—	
6400	Harwood,* l, Durham	0 15 0	1	1
5000	Hush Eisteddfod Minera,* l	2 0 0	—	
200	Islay,* l, Scotland	28 0 0	—	
2500	Killaloe, sl, Tipperary‡	1 0 0	—	
4000	Killifreth, t, Chacewater	2 1 0	¼	⅛ ¼
25000	Kingston Con., s-l, Stoke Climsland.	1 0 0	—	
	Ditto, preference	1 0 0	⅝	½ ⅝
12000	Ladywell,* l, Salop	2 10 0	1¼	1 1½
12000	Ditto, 10 per cent. pref., 1l. each	0 10 0	⅜	⅛ ⅜
2500	Levant, c, t, St. Just	9 18 6	—	
25000	Llanrhaiadr, l, Montgomery*	2 0 0	—	
30000	Llanrwst,* l, Carnarvon	2 0 0	4¼	4 4¼
15000	Llwyn Teify,* s-l, Cardigan	1 0 0	—	
6000	Medlyn Moor, t, Wendron	1 17 4	2	2
3500	Mellanear Copper, Hayle*	2 0 0	2½	2¼ 2½
6000	Ditto	1 15 0	2	1½ 2
1000	M[illegible], l, Cardigan*	3 0 0	¼	¼ ⅜
11000	Monydd Gorddu, l, Cardigan* (Red.)	5 0 0	4	3 4
25000	Nant-y-Ronen, s-l, Cardigan*	1 0 0	—	
15000	Nascent Copper*	1 0 0	—	
4525	New Bronfloyd,* l, Cardigan (5l. sh.)	3 10 0	—	
20000	New Consols, s, a (in liquidation)	—	—	
8000	New Dolcoath, t, c, Camborne*	3 0 0	1¼	1⅛ 1¼
20000	New East Foxdale, s-l, Isle of Man.	0 15 0	—	
16000	New Fowey Consols, t, St. Blazey*.	3 0 0	2	1½ 2
1492	New Hendra, t, Breage	3 9 0	—	
3200	New South Merllyn, l, Flint*	2 10 0	1	½ 1
5000	New Wheal Emma, c, Buckfastleigh	2 0 0	—	
4000	North Cornwall, l, Cornwall	5 0 0	5¼	5 5¾
17000	North Laxey,* Isle of Man	3 0 0	⅜	⅜ ⅜
2000	North Levant, t, c, St. Just‡	12 2 0	—	
20000	North Prince Patrick,* l, Holywell.	1 0 0	—	
5936	North Treskerby, c, St. Agnes	4 7 10	—	
2000	North Wheal Towan, t, c, Illogan	1 19 6	—	
2500	Old Tincroft, c, t, Lelant*	4 0 0	4	3 4
6400	Oola Hills,* s-l, Limerick	5 0 0	—	
12000	Pandora,* l, Carnarvon	2 0 0	1⅛	1 1⅛
30000	Panty Mwyn,* l, Mold (8791 iss.)	2 0 0	2	2 2
16923	Parys Mountain,* c, Anglesea	3 0 0	¼	⅛ ¼
4000	Pateley Bridge, l, Yorkshire	5 0 0	2¼	2 2¼
30000	Perkins Beach, l, Shropshire	1 0 0	1¼	1 1¼
12000	Plynlimmon, l, Llanidloes*	2 0 0	¾	¾
648	Polrose, t, Breage	21 0 0	—	
10000	Port Nigel,* s-l, Carnarvonshire	2 0 0	2½	2 2½
2000	Prideaux Wood, t, Lanivery	5 0 0	—	
5182	Prince of Wales, c, Calstock‡	2 4 0	⅜	¼ ⅜
10000	Red Rock,* l, Cardigan	2 0 0	2½	2 2½
6000	Relistian Consols, c, Gwinear	0 10 0	⅝	½ ⅝
15000	Rookhope, l, Durham*	1 10 0	1⅛	1 1⅛
5000	Silvercross,* c, t, Marazion	1 0 0	¾	½ ¾
4200	Snowbrook, s-l, Montgomery	5 0 0	5¼	5¼ 5¾
6000	So. Cwmystwith, l, Cardiganshire	2 0 0	3½	3 3½
6000	South Darren, l, Cardigan*	1 10 0	—	
512	South Dolcoath, c, t, Redruth	12 5 0	1¼	1 1¼
5000	So. Molton Cons., s-l, No. Devon	0 2 0	1	¾ 1
18000	South Roman Gravels, l*	1 10 0	⅝	½ ¾
6000	South Roskear, t, c, Camborne	6 10 0	5	4 5
6000	South Tolcarne, t, c, Camborne	1 14 0	¾	½ ¾
937	South Wheal Crofty, c, Illogan	38 1 10	9	8 9
4500	South Wh. Frances, c, Illogan†	7 12 4	3	2 2½
6000	St. Lawrence, Amal., l, Flintshire*	2 0 0	—	
10000	St. Patrick, l, Halkin, Holywell*	1 0 0	1¼	¾ 1
6000	Success, &c., l, Derb. (12,000l. called)	1 0 0	—	
16000	Sunnyside,* l, Durham	2 0 0	2½	2 2½
30000	Talybont, s-l, Cardiganshire	1 0 0	1¼	1 1¼
4400	Teesdale,* l, Durham	1 0 0	⅞	¾ ⅞
14000	Teign Valley, l, bar., Bridford	1 0 0	-	
10000	Temple, l, Cardigan*	1 0 0	2¼	1¾ 2¼
10000	Tolgus Consols,* c, Redruth	5 0 0	5½	5 5½
12000	Trebeigh Consols, s-l, St. Ive	0 9 0	⅜	¼ ⅜
6000	Treleigh Wood, t, Redruth	6 1 0	—	
547	Treiyon Consols	15 0 0	⅝	½ ⅝
12000	Trethellan, s-l, Crantock*	2 0 0	—	
640	Truro*, l, Nerquis, Flintshire	10 0 0	—	
10000	Tyn-y-Fron,* l, Cardigan	1 0 0	1⅛	1 1⅛
20000	Van Consols, l, Llanidloes*	2 10 0	½	⅜ ½
1000	Vaughan*, l, Cardiganshire	10 0 0	—	
12000	West Assheton, l, Carnarvon	1 0 0	1	¾ 1
4000	West Basset, c, Illogan†‡	6 0 0	2	1½ 2
3500	West Combmartin, s-l, North Devon	1 0 0	⅞	⅝ ⅞
7000	Ditto	0 2 6	¼	⅛ ¼
3000	W. Craven Moor, l, Pateley Bridge*.	10 0 0	11	10 11
5000	West Godolphin, t, c, Breage	2 6 0	2	2 2½
12000	West Goginan,* Cardiganshire	2 0 0	⅜	¼ ⅜
10000	West Llangynog, s-l, Montgomery	2 0 0	—	
3000	West Mary Ann, l, Menheniot	0 3 6	1	¾ 1
50000	West Milwr, s-l, Flint	1 0 0	—	
5000	West of England Granite Company.	2 0 0	2	2
20000	West Pateley Bridge, l, Yorkshire	1 0 0	2¼	1¾ 2¼
1000	West Roskear, t, s-l, bl, c, Camborne.	2 0 0	15	10 15
12000	West Tankerville,* l, Salop	3 0 0	1	¾ 1
3000	Ditto, 15 per cent pref.	3 0 0	2	1¾ 2
15000	West Treasvean,* c, t, Gwennap	1 0 0	1⅜	1¼ 1⅜
3000	West Wheal Peevor, t, Redruth	0 10 0	—	
600	West Wheal Seton, c, Camborne†	47 0 0	22½	20 22
6000	Wheal Agar, c, Illogan	12 0 0	4½	3¾ 4¼
512	Wheal Basset, c, Illogan‡	22 2 6	13	11 13
6000	Wheal Coates, t, St. Agnes	2 0 0	2	1½ 2
2635	Wheal Comfort, c, Gwennap	1 5 0	5	4½ 5
6000	Wheal Crebor, c, Tavistock	4 1 0	2	1½ 2
5179	Wheal Grenville, c, Camborne*	2 18 6	3	3 3½
12000	Wh. Mary Hutchings,* t, Plympton	1 14 0	—	
3000	Wheal Peevor, t, Redruth	6 7 6	6	5 6
12000	Wheal Russell, c, Tavistock	2 1 6	⅜	¼ ⅜
4096	Wheal Uny, t, c, Redruth	13 11 6	1¼	¾ 1
480	White Cliff,* l, Llanrwst	4 0 0	—	

b, blende; cl, coal; c, copper; g, gold; l, lead; s, silver; sl, slate; s-l, silver-lead; t, tin; z, zinc.

* Limited Liability Companies; † quoted on the Stock Exchange; ‡ have paid dividends.

IRON AND COAL COMPANIES.

Shares.	Company.	Paid.
£100	Abbot, John, and Co. [L.]	75 0 0
15	Albion Steel and Wire Co. [L.]	14 0 0
5	Alltami Colliery Co. [L.]	5 0 0
100	Ashbury Co. [L.]	90 0 0
10	Bagnall, John, and Sons [L.]	10 0 0
10	Benhar Coal Co. [L.]	10 0 0
50	Bilbao Iron Ore Co. [L.]	50 0 0
10	Bilson & Crump Meadow Coll. Co. [L.]	10 0 0
4	Blaen Cwmbach Coal Co. [L.]	4 0 0
50	Blaenavon Iron and Steel Co. [L.]	50 0 0
100	Bolckow, Vaughan, and Co. [L.] A	45 0 0
50	Bowling Iron Co. [L.]	50 0 0
50	Britannia Ironworks [L.]	25 0 0
50	Brown, Bailey, and Dixon [L.]	40 0 0
100	Brown, John, and Co. [L.]	70 0 0
5	Cakemore Colliery Co. [L.]	5 0 0
100	Cammell and Co. [L.]	80 0 0
20	Cannock and Huntington Coal [L.]	6 0 0
10	Cardiff & Swansea St. Coal Co. [L.]	8 0 0
10	Cardigan Steel and Wire Co. [L.]	8 10 0
10	Central Swedish Iron and Steel [L.]	10 0 0
5	Chapel House Colliery	5 0 0
50	Charlton Iron Co. [L.]	50 0 0
50	Chatterley Iron Co. [L.]	45 0 0
10	Chillington Iron Co. [L.]	10 0 0
1	Clee Hill Colliery Co. [L.]	1 0 0
10	Consett Iron Co. [L.]	7 10 0
1	Consett Spanish Ore [L.]	1 0 0
50	Cooke, William, and Co. [L.]	40 0 0
20	Darlington Iron Co. [L.]	12 10 0
50	Davy Brothers [L.]	22 10 0
5	Diamond Fuel Co. [L.]	5 0 0
32	Ebbw Vale Co. [L.]	29 0 0
100	Fox, Samuel, and Co. [L.]	80 0 0
10	General Mining Ass. [L.] (£1 returned)	8 0 0
20	Great Western Coal Co. [L.]	17 0 0
2	Gwyngwillim Colliery Co. [L.]	2 0 0
15	Hopkins, Gilkes, and Co. [L.]	11 0 0
50	Knowles, Andrew, and Sons [L.]	17 0 0
10	Llay Hall Coal, Iron, & Firebrick [L.]	10 0 0
5	Littledean Woodside Coll. Co. [L.]	5 0 0
50	Llynvi, Ogmore, & Tondu Co. [L.]	50 0 0
10	Lydney and Wigpool Iron Ore [L.]	8 5 0
10	Marbella Iron Ore Co. [L.]	10 0 0
6	Mersey Steel and Iron Co. [L.]	5 0 0
10	Midland Iron Co. [L.]	5 0 0
5	Mold Argoed Colliery Co. [L.]	5 0 0
10	Monkland Iron and Coal Co. [L.]	10 0 0
4	Mwyndy Iron Ore [L.]	3 10 0
100	Nant-y-Glo and Blaina (8 p. c. pref.)	100 0 0
8	Nerbudda Coal and Iron [L. & Red.]	2 0 0
20	New Sharlston Collieries [L.] Pref.	20 0 0
10	Newport Abercarn Coal Co. [L.]	10 0 0
10	Northmptn. Coal, Iron & Wagon [L.]	8 0 0
10	Northfield Iron Co. [L.]	8 0 0
1	Norton Green Coal Co. [L.]	1 0 0
35	Palmer's Shipbuilding and Iron [L.]	25 0 0
100	Parkgate Iron Co. [L.]	65 0 0
20	Patent Nut and Bolt Co. [L.]	14 0 0
20	Patent Shaft and Axletree [L.]	10 0 0
20	Pelsall Coal and Iron [L.]	15 0 0
50	Phœnix Bessemer Co. [L.]	40 0 0
50	Rhymney Iron Co. [L.]	50 0 0
10	Richards and Co. [L.]	10 0 0
100	Sandwell Park Colliery Co. [L.]	100 0 0
50	Ditto New	10 0 0
100	Shotts Iron Co. [L.]	100 0 0
100	Sheepbridge Iron and Coal [L.]	55 0 0
50	Silkstone & Dodworth Cl. & Iron [L.]	27 0 0
20	Skerne Ironworks [L.]	20 0 0
50	Somorrostro Iron Co. [L.]	50 0 0
25	South Wales Coal Co. [L.]	21 0 0
100	Staveley Iron and Coal Co. [L.]	60 0 0
100	Ditto ditto New	10 0 0
10	Swansea Valley Steam Coll. Co. [L.]	5 0 0
100	Thames Iron Company	100 0 0
50	Tredegar Iron and Coal Co. [L.]	20 0 0
25	Ditto B. shares	25 0 0
20	Ulverston Mining Co. [L.]	12 0 0
10	Vancouver Coal [L.]	6 0 0
100	Vickers, Sons, & Co. [L.]	100 0 0
50	Welsh Ironworks Co. [L.]	50 0 0
25	W. Cumberland I. and Steel [L.]	29 0 0
10	West Mostyn Coal [L.] (12 p.c. pref.)	5 0 0
5	West Swansea Colliery Co. [L.]	5 0 0
10	Whitehaven Iron Co. [L.]	10 0 0
100	Wigan and Whiston Coal Co. [L.]	70 0 0
100	Wigan Coal and Iron Co. [L.]	75 0 0

WAGON COMPANIES.

Shares.	Company.	Paid.
10	Birmingham Wagon Co. [L.]	10 0 0
10	Ditto, 2nd issue	4 0 0
10	Ditto, pref., 6 per cent.	10 0 0
20	British Wagon Co. [L.]	10 0 0
10	Gloucester [L.]	10 0 0
10	Ditto, 5th issue	5 0 0
10	Met. Rail. Car. and Wagon Co. [L.]	5 0 0
5	Ditto, pref., 6 per cent.	5 0 0
10	Midland	10 0 0
20	North Central Wagon Co.	20 0 0
5	Rail. Car. [L.] (Oldbury)	5 0 0
5	Ditto, pref., 6 per cent.	5 0 0
20	Sheffield Wagon Co. [L.]	15 0 0
10	Yorkshire Wagon Co. [L.]	10 0 0

TELEGRAPH COMPANIES.

Shares.	Company.	Paid.
"St."	Anglo-American	100 0 0
10	Brazilian Submarine	10 0 0
20	Direct United States Cab'e	20 0 0
10	Eastern	10 0 0
10	East. Exten., Australia and China	10 0 0
10	Great Northern	10 0 0
25	Indo-European	25 0 0
10	Mediterranean Extension	10 0 0
8	Reuters	8 0 0
Stk.	Submarine	100 0 0
10	West India and Panama	10 0 0
20	Western and Brazilian	20 0 0
$1000	Western Union, 7 per cent. Mort. Bonds	$1000

MISCELLANEOUS.

Shares.	Company.	Paid.
100	Ang. Virginian Freehold Land Bonds	100 0 0
Stk.	Atlantic and Great Western Leased Lines, Rental Trust	100 0 0
25	Australian Agricultural	21 10 0
25	Austral. Mort. Land and Finance [L.]	5 0 0
10	Avonside Engine [L.]	7 0 0
Stk.	Baltimore and Ohio, 6 per cent.	100 0 0
10	Brighton Aquarium [L.]	10 0 0
Stk.	Cent. of New Jersey Con. Mort.	100 0 0
Stk.	Cent. Pacific of Calif., 1st Mort. 6 p.c.	100 0 0
25	City of London Real Property [L.]	12 0 0
25	Copper Miners of Eng. (7 p. c. pref.)	25 0 0
5	Diamond Rock Boring	4 10 0
15	English and Foreign Credit	8 0 0
16	Fore Street Warehouse [L.]	14 0 0
15	Foster, Porter, and Co. [L.]	10 10 0
5	Gen. Phos. & Chem. Works Co. [L.]	5 0 0
5	Kit Hill Tunnel [L.]	1 0 0
17	Hudson's Bay Company	17 0 0
10	Huntington Copper and Sul. Co.	9 0 0
Stk.	Illinois Central, $100 shares	100 0 0
Stk.	Illinois & St. Louis Bridge, 1st Mort.	100 0 0
Stk.	Ditto, 2nd Mort., 7 per cent.	100 0 0
Stk.	Illinois Cent. Sinking Fund, 5 p. cent.	100 0 0
Stk.	Ditto, 6 per cent.	100 0 0
7½	Imperial Credit [L.]	7 10 0
—	Ditto, Surplus Certificate	—
Stk.	Lehigh Val. Con. Mort., A, 6. p. cent.	100 0 0
10	Milner's Safe [L.]	10 0 0
25	National Discount [L.]	5 0 0
Stk.	N. Cent. Rail. Con. Mort., 6 per cent.	10 0 0
10	Pawson and Co. [L.]	6 0 0
50	Peninsular and Oriental Steam	50 0 0
Stk.	Pennsyl. Gen. Mort. 6 p. cent., 1910	100 0 0
Stk.	Ditto, Con. Sink. Fund, 6 p. ct., 1905	100 0 0
Stk.	Scottish Aust. Investment Company.	100 0 0
Stk.	Ditto, 6 per cent. Preference	100 0 0
10	Silber Light (ord. sh.)	10 0 0
20	Suez Canal shares	20 0 0
12	Telegraph Construc. & Mainte. [L.]	12 0 0
5	Ditto, Second Bonus Three per Cents	5 0 0
10	Tharsis Sulphur and Copper Co.	10 0 0
Stk.	Union Pacific Land Grant, 1st Mort.	100 0 0
Stk.	Union Pacific Railway, 1st Mort.	100 0 0

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